

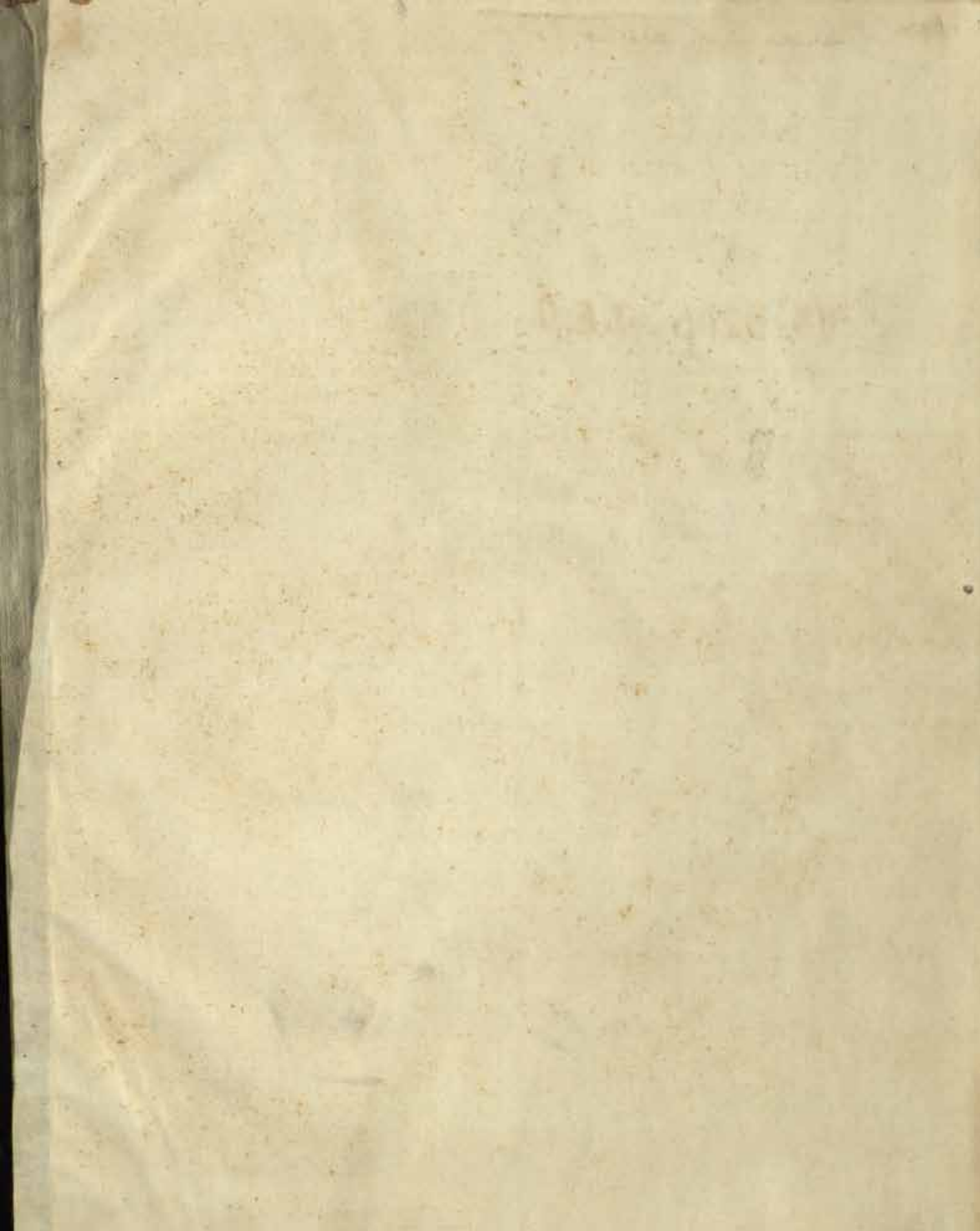
GOVERNMENT OF INDIA

DEPARTMENT OF ARCHAEOLOGY

**CENTRAL ARCHAEOLOGICAL
LIBRARY**

CALL No. **913.3205 J.E.A.**

D.G.A. 79



THE JOURNAL
OF
EGYPTIAN ARCHAEOLOGY

ALL RIGHTS RESERVED

THE JOURNAL
OF
EGYPTIAN ARCHAEOLOGY



VOLUME XVII

26526

913.3205
—
J. E. A.

PUBLISHED BY
THE EGYPT EXPLORATION SOCIETY
13 TAVISTOCK SQUARE, W.C. 1
LONDON
1931

Call No. 913.3205 / J.E.A.

PRINTED IN GREAT BRITAIN

CONTENTS

	PAGE
A FRAGMENT OF A GREEK ILLUSTRATED PAPYRUS FROM ANTINOË S. J. Gasiorowski 1	1
THREE ROYAL SHAFTS IN THE BRITISH MUSEUM H. R. Hall 10	10
"CEDAR"-TREE PRODUCTS EMPLOYED IN MUMMI- FICATION A. Lucas 13	13
A "BEAKER" POT IN THE STOCKHOLM EGYPTIAN MUSEUM Pehr Lugn 22	22
HISTORICAL SCARABS OF TUTHMOSIS IV AND AMENOPHIS III Alan W. Shorter 23	23
KEFTIU G. A. Wainwright 26	26
A GREEK PAPYRUS CONCERNING THE SALE OF A SLAVE S. Eitrem 44	44
OBJECTS BELONGING TO THE MEMPHITE HIGH- PRIEST PTAHMASE H. R. Hall 48	48
MOSCOW MATHEMATICAL PAPYRUS, NO. 14 ... W. R. Thomas 50	50
REED-FLOATS IN MODERN EGYPT G. D. Hornblower 53	53
THE STELE OF THETHI, BRIT. MUS. NO. 614 ... Aylward M. Blackman 55	55
A NOTE ON EGYPTIAN LAW-COURTS I. Lourie 62	62
AN ARCHAIC STATUETTE FROM ABYDOS S. R. K. Glanville 65	65
NÂR-BA-THAI Vladimir Vikentiev 67	67
A SMALL TEMPLE IN THE WESTERN DESERT ... G. W. Murray 81	81
AN ABBREVIATED DEMOTIC BOOK OF THE DEAD. A PALAEOGRAPHICAL STUDY OF PAPYRUS BRITISH MUSEUM 10072 Nathaniel Julius Reich 85	85
AN UNUSUAL TYPE OF STATUETTE S. R. K. Glanville 98	98
A PROBLEM IN EGYPTIAN GEOMETRY T. Eric Peet 100	100
THE TOMB OF QUEEN INHAPL. AN OPEN LETTER TO THE EDITOR H. E. Winlock 107	107
DR. H. R. HALL Hugh Last 111	111
BIBLIOGRAPHY: GRAECO-ROMAN EGYPT. A. PAPYRI (1929-30) H. J. M. Milne, A. D. Nock, H. I. Bell, J. G. Milne, N. H. Baynes, F. de Zulueta, M. E. Dicker, R. M ^c Kenzie 117	117

	PAGE
A PORTRAIT OF SMENKHKERE(?) AND OTHER 'AMARNAH FRAGMENTS IN THE BRITISH MUSEUM H. R. Hall	165
PRIMITIVE METHODS OF MEASURING TIME, WITH SPECIAL REFERENCE TO EGYPT R. W. Sloley	166
EXCAVATIONS AT TELL EL-'AMARNAH, 1923-4. A. STATUARY F. Ll. Griffith	179
THE EMBLEM OF MIN G. A. Wainwright	185
EARLY BYZANTINE AND LATER GLASS LAMPS ... Grace M. Crowfoot and D. B. Harden	196
A FRAGMENT FROM THE MUMMY WRAPPINGS OF TUTHMOSIS III Dows Dunham	209
CEREMONIAL GAMES OF THE NEW KINGDOM ... John A. Wilson	211
A NOTE ON THE ORIGIN OF OSIRIS T. J. Colin Baly	221
EXCAVATIONS AT ARMANT, 1929-31 O. H. Myers and H. W. Fairman	223
PRELIMINARY REPORT OF EXCAVATIONS AT TELL EL-'AMARNAH, 1930-1 J. D. S. Pendlebury	233
ADDITIONS TO THE HIEROGLYPHIC FOUNT (1931) Alan H. Gardiner	245
BIBLIOGRAPHY: CHRISTIAN EGYPT (1930-1) ... De Lacy O'Leary	248
NOTES AND NEWS	143, 254
NOTICES OF RECENT PUBLICATIONS	147, 258
LIST OF PLATES	270
LIST OF ILLUSTRATIONS IN THE TEXT	274
NOTICES OF RECENT PUBLICATIONS, DETAILED LIST	276
INDEX	277



FRAGMENT OF AN ILLUSTRATED GREEK
PAPYRUS FROM ANTINOË

Date about A.D. 500

A FRAGMENT OF A GREEK ILLUSTRATED PAPYRUS FROM ANTINOË

By S. J. GĄSIOROWSKI

With Plate i.

I am deeply indebted to Dr. John Johnson of Oxford, who, acting on the suggestion of Professor Beazley, has sent me a facsimile of his papyrus-fragment and asked me to describe it for the *Journal*.

This fragment was discovered by Dr. Johnson in 1914 among a number of late papyri in a mound at Antinoë. He tells me that the material which came out of this rubbish mound ran from late fourth century onwards to sixth. None of it has been published.

The fragment (c. 12×7.5 cm.) is undoubtedly part of a leaf of a papyrus-book. The upper part contains on its left side traces of three lines of text, apparently the last letters of the column. Of the letter in the top line there remains just a part of a stroke; of the visible letters of the second line the last may be a Sigma, the first perhaps an Alpha; the only remaining letter of the third line may be a Tau. On the right of the upper part of the fragment, at about the level of the second line of the text, there is still visible some sort of sign, possibly a letter representing the number of the page. The form of the letters appears to indicate a date about A.D. 500 for the text.

Nearly three-quarters of the whole fragment are occupied by part of a coloured illustration, representing a group of charioteers. The size of the whole leaf cannot be determined with any certainty, but may well have been rather considerable, judging, *e.g.*, by the analogy of the illustrations in the *Alexandrian Chronicle*¹. Nor can the relation of the illustration to the column of the text (graphically speaking) be established. The illustration is not a miniature in the true sense of the word, as it is not bordered.

The fibres of the papyrus-plant here run horizontally, consequently I take it for granted that we have before us the *recto* of a papyrus-leaf². The *verso* of the fragment does not contain any visible matter, either written or painted.

The illustration represents a group of six charioteers visible almost to their knees, three of them standing in the front line; each is slightly further back than his companion to the left. A part of the body of another charioteer is seen to the left of the picture, and on the second plane are to be seen the heads and parts of the bodies of two more charioteers. The charioteers on the right appear to be standing under, or rather before, an arcade.

Four principal colours were used by the painter, *viz.* a light yellow, a kind of middle green, a blue which now appears rather dirty, and a red; white is to be noticed too, but only in almost imperceptible strokes or points for details. I think we may assume that the artist first laid on the colours thickly with his brush and then drew the contours in

¹ Bauer-Strzygowski, *Eine alexandrinische Weltchronik*, Vienna, 1905, plates.

² By analogy with the *Alexandrian Chronicle* and other remnants of illustrated papyri.

a strong, sometimes broad, black line. I am led to believe this was so by the absence of traces of a preliminary sketching of contours in places where the colours have fallen away, as for instance on the left sleeve of the charioteer with the whip, as well as by the visibly not coloured yellow fleck on the cap of the charioteer to the right.

The charioteers clearly belong to different *factiones*. The first on the left in the front line wears a short red tunic with broad yellow bands diagonally crossed and black and blue bindings, blue sleeves, and a yellow cap with a narrow blue band below. He is undoubtedly standing at attention, his left hand on his thigh, his right hand and forearm raised in the (known) attitude of speaking or of attention. He may well be the central figure of the composition. The next to the right is seen in the attitude of the born jockey; his tunic is blue, with red sleeves and undergarment (?), and he wears a yellow cap. His left hand is on his thigh and in his slightly raised right hand he holds a whip. His head is turned slightly to his right. These two charioteers appear to be more important than the others, not only by their position in the front line of the group, but also by their gestures.

To the right of these two and just a little behind them stands a man dressed in a green tunic with yellow bands, vertical and horizontal, and a yellow cap, with a narrow blue border. His head is turned more to one side than that of any other man in the whole group. He has no bindings on his tunic, and may be either no charioteer at all or a charioteer not yet ready for the games. His cap is in any case that characteristic of this profession.

Behind the central group of charioteers we see the head and the bust of one more man, dressed in a green tunic (with bindings) with red sleeves and in a yellow cap with the usual blue edging. His head is also turned to the left. Close to him are visible the head and the shoulders of another man also in a yellow cap; the colours of his garment are not discernible. He appears to be standing on a still higher level. The left part of the body of a sixth man, apparently a charioteer, is seen on the left side of the illustration. His tunic and trousers are green, the sleeves are red; his head is lost.

We thus seem to have here a picture representing charioteers belonging to three *factiones*, green (three men), red (one man), blue (one man); it may be surmised that there were also represented jockeys belonging to the fourth *factio*, the white.

The artistic merits of the picture are obvious. The whole group, even in its present mutilated state, is excellently composed. The drawing shows a bold and very sure hand; all the movements are natural and vivid; this is not a lifeless, hieratic group of the kind which we are accustomed to see in early mediaeval Coptic works of art. The whole group is drawn in a free Hellenistic style and possesses a charm of its own. Masses are carefully balanced on each side of the apparently central group of charioteers. Space is indicated in the indirect manner of Early Christian paintings, mosaics, miniatures, and reliefs, *i.e.*, by intersection. Only one man, he with the raised hand, is in full view; the men to the right are shown slightly one behind the other by the intersection of parts of their bodies. The men whose heads and busts alone are visible have an independent movement of their own. There is of course no perspective, not even in the manner of Hellenistic paintings, and no landscape or architectural details are indicated which would help the rendering of the third dimension. The group is seen standing freely, yet we are not shown whether it is standing in an open or enclosed space. The attitudes of the charioteers show the predilection of the painter for placing human bodies *en face*, but they are poised in a way that shows that he has mastered the art of rendering the freely standing human figure; the movements and inclinations of the heads and arms and hands

add to the charm of the picturesque group-composition. Of the band or arch which appears in the background I shall speak later. I must draw attention to the fact that the charioteers do not all look in one direction; we see them looking partly to the left, partly to the right; their pupils are shown in such a position that they seem to be looking at angles of 45° or even more apart. The painter understood very well how to show the pupils of men standing on a higher level but looking at more or less the same point or action as the men below them. It would seem that they are looking at two objects or actions placed respectively to their left and right.

Points of comparison for various stylistic details such as the treatment of heads, movements, poses, etc. may be found in different classes of works of art of the Late Hellenistic, Roman and Early Christian periods.

The facial type of the charioteers is clearly Greek, and not Semitic or Coptic. The characteristic inclination to the left of the heads of four of them may be compared with the positions of heads on textiles of the Graeco-Roman period in Egypt, as for instance to the portrait-busts on two panels¹ of the 4th-5th centuries from Akhmim. The same mannerism of putting the pupils right in the corner of the eye or just above the lower lid is seen on other textiles of the same period, e.g., on a panel with a half-length figure of Hermes, or another with that of Apollo, also from Akhmim². The way of drawing the nose by making an almost straight black stroke, or two at a slight angle, for the nostrils, adding one long vertical stroke on that side of the nose which is in shade, and lighting up the other side, appears on different portraits from the Fayyûm³. Of course, it is much more developed and pictorial there. We see the same proceeding in the Ambrosian Iliad (e.g., on folio 33 verso). For the treatment of the hair we may again find parallels in Fayyûm portraits⁴: locks are sometimes shown falling over a narrow forehead.

The Iliad in the Ambrosiana gives us several hints as to different points in our composition. In its miniatures masses are generally more stiffly distributed than in our papyrus. This is seen in the groups illustrated by Ceriani-Ratti in Pls. v, xii, xiv, xxv, lv. Consequently perspective by intersection in our illustration is nearer modern perspective than in the Iliad. The method of grouping figures by intersection as seen in our papyrus is not very similar to that of the Iliad; the only analogy would be folio 22 verso (Ceriani-Ratti, Pl. xxv), a group of Trojan women. I think that the groups of kings⁵ on folios iv verso and v verso of the Alexandrian Chronicle do rather remind us of our group, which, however, is much weaker in execution, and stiffer and more naive in composition. None of these various analogies seems to me sufficient to indicate clearly the origin of the treatment of the forms seen in our picture, but they all tend to show that all its forms were current in the Late Roman epoch.

The iconography of the scene is not clear at first sight, though it is certain we have here a group of charioteers or, more generally speaking, of members of three *factiones*. There has not yet been written an exhaustive iconographical study of ancient chariot-races or circus games as represented in monuments of art. The chapter on this subject in Friedländer's *Sittengeschichte* is antiquated, and so are the articles in Daremberg-Saglio's *Dictionnaire* (s.v. *Circus*, *Ludi*). Both these studies are more occupied in dealing with

¹ Kendrick, *Catalogue of textiles from burying-grounds in Egypt*, I, Nos. 58, 59, Plate xiv.

² Kendrick, *op. cit.*, Nos. 52, 53, Plate xiv.

³ Wasmuth, *Kunsthefte*, I, Plate 4, and many other examples. Pfuhl, *Malerei und Zeichnung der Griechen*, III, fig. 680.

⁴ Wasmuth, *op. cit.*, Plate 4.

⁵ Bauer-Strzygowski, *Eine alexandrinische Weltchronik*, Plates iv verso and v verso.

the historical development of chariot-racing in Rome and Byzantium than with analysing works of art, and the latter are only used to illustrate the institution and procedure of the races. The article in Cabrol-Leclercq has the same defects. In going through the long series of ancient monuments which represent scenes from the circus I do not find any close analogies to our composition. It is true that many objects are not adequately published, and that there are many more published from Rome and the western provinces, including North Africa (mosaics) and Byzantium (diptychs, the monument of Porphyrios, etc.), than from Egypt. On the basis of the material hitherto published it is difficult to discern any strong or characteristic differences between the rendering of circus scenes in the capitals, Rome and Byzantium, and in the provinces. I am inclined to assume a certain uniformity of representation. The differences observable arise rather out of the differences between the various classes of monuments which portray such scenes. Mosaics, for example, give the artist a free hand and thus provide the largest and most detailed scenes. The same is true of reliefs, under which head Alexandrian terracottas may be included. Textiles, diptychs, gems, lamps, and golden cups (*fondi d'oro*) usually give a shortened rendering, a simplified version, so to say, and this also applies to Byzantine coffrets of a later period, etc. The well-known Vatican statue illustrates excellently the dress of a charioteer¹. The miniature on folio 49 *recto* of the Ambrosian Iliad reproduces clearly a different tradition, as various moments of the games in honour of Patroclus are figured in the same painting; it is the continuous or cyclic style, which does not appear to be employed on the papyrus.

The composition of our illustration is far removed from these representations. I consider it to be unique in its scheme, and therefore its importance rises accordingly. Two questions arise in regard to it: first, Why are representatives of different *factiones* shown together in one picture? and secondly, What is the meaning of the kind of arch in the background? In order to solve these we must determine what moment of the *pompa*, or immediate preparations for the races, or what act during or after the races, the illustrator meant to portray.

In relation to the first question we must remember that it is quite probable that the monument of Porphyrios² in Constantinople was erected by all the four *factiones*, and not only by the "Greens" to whom he belonged³. It would follow that in some cases a famous and victorious charioteer might have been honoured not only by his friends but also by his antagonists. If so, then there is no reason why members of different *factiones* should have not been represented standing together, though it was unusual.

The arch in the background may, and probably does, represent simply an arcade of the circus, though it is true that such arcades are usually more carefully drawn, as for instance on the mosaic from Dougga in Tunisia⁴. Other possibilities are that it represents the ropes by which the gate of the circus was closed⁵, or the barrier between the spectators and the arena⁶, or perhaps the gates⁷. Of these various suggestions I incline towards that of the arch, as our scene could be easily imagined with such a background.

Assuming these two difficulties to be removed let us try to find what moment of action is represented. The monuments are totally silent, for there is no close analogy to our composition. But from descriptions in ancient authors, and from our general knowledge

¹ *J.D.A.I.*, 1903, 68 ff.

² Mordtmann, *Ath. Mitt.*, 1880, 308.

³ Daremberg-Saglio, s.v. *Circus*, 1189, fig. 1519.

⁴ Daremberg-Saglio, s.v. *Circus*, 1191, fig. 1521.

⁵ *Rev. arch.*, 1911, XI, 76 ff.

⁶ *Rev. arch.*, 1902, II, 398, Pl. xx, 1.

⁷ Helbig-Amelung, *Führer*, I, 217 ff.

of these things, we may draw some inferences. The proceedings and apparatus of a *pompa circensis* and chariot-races as depicted on the monuments consist of the *pompa* itself, the procession of the *tensae* and of the *carpentum*, the chariot-races in the circus, the circuses and their parts (the stables), the magistrate's lodge, the horses in their stables, the charioteers (separately as a rule), the victors, the giving of the prize to a charioteer, the drawing of lots. There may also be represented other special moments such as accidents in the arena.

In our group the charioteers are clearly represented as standing, not walking. If this is so, then all moments of the *pompa* itself are to be excluded. We must take into account only those in which the charioteers assembled and formed one group, and that a standing group. This, excluding such moments as would require some characteristic trait, would leave only a few. It might be the drawing of lots. This was performed in the presence of magistrates and representatives of parties; that would explain why some men have no bindings in our picture. A sacrifice before the magistrate's lodge could not have been meant if our illustration is really an original work later than the second half of the fourth century, and not a copy of an earlier picture, for this custom was abolished by Constantine the Great. It cannot be the giving of the prize, as in that case probably only one charioteer would be represented. In any case we must have here a representation of a moment just before the races began; to decide exactly what moment is in my opinion not possible in the present state of our knowledge. The drawing of lots was done in the circus itself, and therefore an arcade would be quite in place. Such would be the solution if our composition is not a free invention, independent of any known iconographical tradition. That such free scenes may occur, despite the tendency to types which was characteristic of ancient art, is proved by various scenes in the Ambrosian Iliad. The same document also proves that a Greek mythological scene may often be clothed in Roman forms, for charioteers in the scenes of games after Patroclus' death are dressed in the colours of Roman *factiones*¹. Such monuments are not rare of course, but usually, though not in the Iliad, they rely on an old Greek iconographical cycle.

We do not know to what kind of literature our fragment belonged. It may or may not have been a fragment of Homer, or of some other poetical or literary work, or a remnant of an unknown descriptive book. Neither text nor representation enables us to solve this problem.

It may be useful to look through the historical material relating to chariot-races, circuses and charioteers in Roman and Byzantine Egypt with a view to testing the possibility that papyrus-books in Egypt in these epochs were illustrated by artists who had actually witnessed scenes in the circus, and to whom such scenes were living matter and not a dead past. If this were the case it would explain to some extent the vividness of our picture.

It is well known that we have good authorities on chariot-races, etc. in Rome and Byzantium. Constantinus Porphyrogenneta (*De cerim. aulae byzantinae*) may be quoted as an invaluable source for Byzantium, and many others, such as Tertullian, *De spect.*, for general information. For these two capitals the literary material is very extensive and has been used at least to some extent by modern writers² (Friedländer, Pascal in Daremberg-Saglio, and many others who repeat more or less the same facts). For the provinces of the Empire in both the Roman and Byzantine periods the available material

¹ Fol. 49 recto.

² The work of M. Piganiol, *Recherches sur les jeux romains*, 1923, is known to me only through the synopsis in *J.R.S.*, 1922, 295.

has not been exhaustively published. Little beyond a few well-known facts, based on passages in Dio of Prusa and others, has been said about chariot-races and circuses in Egypt. I therefore give some details taken from ancient authors, papyri and inscriptions.

The vividness, splendour and importance of chariot-races in the circus of Alexandria have been touched upon by several modern authors¹. We possess several ancient passages on the subject, e.g., on the Alexandrian circus in the times of Trajan by Dio of Prusa in his speech *Πρὸς Ἀλεξανδρεῖς*. It is not to be doubted that circus-games of all kinds, including chariot-races, were an important factor in Roman Alexandria. We have also explicit testimony to the existence of circus-parties in that town, for John of Nikiou, 119, says that while the Romans were shut up in Alexandria by Amr, there were open battles in the streets between the Blues, led by Domentianus, prefect of the Fayyûm, and the Greens, led by Menas the *dux*². Thus not only is the existence of parties in Alexandria conclusively proved, but also the strength of the tradition of public amusements and their political importance even in moments of danger are demonstrated for as late as the seventh century A.D.

The same or a similar state of things prevailed in provincial towns. I do not intend to deal exhaustively with this subject, which lies beyond my scope, but I note several interesting facts. There exist not a few papyri which illustrate the importance of chariot-races and prove the existence of parties in the towns of Egypt. This has been noted by A. S. Hunt³, who speaks of "repeated allusions to horse-racing, which became quite a rage in the Byzantine period." This was undoubtedly true of the Roman period too. We are fairly well informed about chariot-racing, etc. in Oxyrhynchus from papyri found in that town. I may perhaps be allowed to quote some of various dates:

Oxyrh. Pap. CXL, A.D. 550: Contract in which Aurelius Serenus undertakes the superintendence of the racing stable belonging to Flavius Serenus, a *comes*, for one year. The terms of the agreement are....

Oxyrh. Pap. CXLV, A.D. 552: Receipt showing that the banker Anastasius had paid one *solidus* less 4 carats "for an embrocation needed by the horses of the public circus (τοῦ δημοσίου κίρκου) on the side of the Greens (μέρ[ους] Πρασίνων)," and $\frac{1}{2}$ *solidus* less $1\frac{1}{2}$ carats for expenses.

Oxyrh. Pap. 922, late 6th or early 7th century: Account for horses and other ζῶα. Their use is not stated but perhaps some of them may well have been employed in the ὁξὺς δρόμος or perhaps the δημόσιος κίρκος.

Oxyrh. Pap. CXXXVIII, A.D. 610-611: Contract between Flavius Apion the younger and John, "contractor of the race-house" belonging to Flavius Apion, by which John undertakes for a year the charge of Apion's stable in addition to the racecourse, and to provide him with animals whenever they were required, in return for the payment of one pound of gold (72 *solidi*).

Oxyrh. Pap. CLII, A.D. 618: Receipt showing that Georgius, a secretary, had paid 10½ carats on the Alexandrian standard to two starters employed at the hippodrome on the side of the Blues (Veneti) (τοῦ ἵππικου μέρ[ους] Βενέτων) as their wages for a month.

¹ Schubart, *Ägypten*, Berlin, 1922, 130, 141; Wenger, *Volk und Staat in Ägypten*, 27, and others. Rostovtzeff in his *Social and Economic History of the Roman Empire* is silent on this rather important social point.

² Milne, *History of Egypt*, London, 1898, 161.

³ *Journal*, i, 90.

Thus papyri from Oxyrhynchus prove the existence of stables, races, circuses, and parties in that town in the sixth and seventh centuries A.D. I do not doubt that in earlier times the same state of things prevailed. At any rate, other papyri prove the existence there of all sorts of public games and amusements, if not of races themselves.

Oxyrh. Pap. No. 519, second century A.D.: Account for public games at Oxyrhynchus; list of payments for a theatrical entertainment, etc.

Oxyrh. Pap. No. 1050, 2nd or 3rd century A.D.: Account for games: a fragment of an account of expenditure for the purposes of the public games at Oxyrhynchus (pancratiasts, boxers, conjurers, flute players, etc.).

Oxyrh. Pap. No. 1025, late 3rd century: An order from the municipal officials of Euergetius to an actor and a Homeric reciter to come and perform on the occasion of a festival.

These testimonies tend to show that all kinds of performances were in vogue in Oxyrhynchus in the Roman period, and circus amusements were probably among them.

Various kinds of *agones* took place in other Greek towns of Egypt. A letter of the emperor Gallienus to the procurator Plution (A.D. 267) gives privileges (freedom from "liturgies") to a young man for the merits of his ancestors in athletic games¹. A papyrus written under the same emperor gives a notice by Antimachos, president of the college of judges of *agones*, to the authorities and the people of Hermoupolis Magna, to the effect that Horion was an Olympic victor in the *agones* of trumpeters². Allusions to circuses or *factiones* are found in inscriptions too. One may be quoted: *νίκα ἢ τύχη Εὐτοκίου + καὶ Βενέτων + καὶ τοῦ γράψαντος*³. It follows then that the provincials were as passionate for games of the circus as the inhabitants of the capitals Rome and Byzantium. This is attested also for small provincial towns of Syria and Asia Minor by inscriptions⁴, for North Africa by mosaics, and so on.

It is to be surmised that in Antinoë too there was a circus, where artists could see all kinds of games, and among them chariot-races. If then our papyrus is a work executed at Antinoë, which is possible, we can easily understand how such a vivid and pictorial scene could arise. A circus would there have been an actual thing, and chariot-races and charioteers would have been things seen many times over in everybody's life. If the papyrus was executed in another town in Egypt the same would still be true.

On the other side there is some discrepancy between our illustration, which, as we know, was found among papyri of the late fourth to the sixth century, and the general state of the plastic arts in Late Roman and Byzantine times in Egypt. The illustrated papyrus-book which contained this illustration may of course have been a copy of some older work, but judging by its excellent execution and vividness I should rather call it an original production.

Let us look shortly at the state of things in Egypt in those times. The Alexandrian library almost ceased to exist after the third century A.D., and was certainly completely non-existent after the fourth⁵. On the other hand, grammatical and philosophical schools (and museums) did certainly exist in Alexandria up to the end of the fifth century A.D.⁶ A large number of papyri of earlier or later times show literary tastes being steadily

¹ Wessely, *Corpus Pap. Hermopolitan.*, 119 verso 3 = Wilcken, *Chrestomathie*, 158.

² *Papyrus Erzherzog Rainer Ausstellung*, Vienna, 1894, 84, No. 283.

³ G. Lefebvre, *Rec. des inscr. grecques chrét. d'Égypte*, 1908, No. 37.

⁴ Cabrol, *Dictionnaire*, s.v. *Hippodrome*.

⁵ Breccia, *Alexandria ad Egyptum*, Bergamo, 1922, 50.

⁶ *Op. cit.*, 51.

cultivated in provincial towns as well¹, and artistic activity was probably rather strong in the 5th or even the 6th century. I am not speaking here of Coptic works of art; one must remember that there was in some classes of objects a fairly steady production of works of a decidedly Greek character. The manufacture of textiles in Late Hellenistic style still flourished in Alexandria and many other centres. Thus textiles of the 5th-6th centuries, and ivories, may be quoted as examples. Above all, it must not be forgotten that the decoration of papyri had gone on without interruption since the Ptolemaic epoch, though we have a limited number of examples of that art. We possess also literary evidence on painters or painters' works in this period (portraits)². We may leave out of consideration Christian illustrations on papyri, such as the Alexandrian Chronicle, the illustration to Math. 8, 23-26 with Christ on Lake Tiberias³, or the pen-and-ink drawing with Christ praying⁴, and so on. Generally speaking these fragments are artistically very poor.

Much more important for our aim are illustrated fragments of Greek works. First, there exists a series of scientific illustrations to mathematical, botanical and astronomical works. Secondly, we possess many pen-and-ink drawings of a very inferior quality, such as Pap. Rainer Inv. No. 1673, and a Graeco-Roman medallion, which is in so far interesting as it is analogous to textiles or mosaics. The third and most important series is formed by pictures, some of which are of high artistic merit while others are historically interesting. Of the latter the most important is the fragment of a roll (Paris, Suppl. gr. 1294) of the 1st or 2nd century A.D., still showing the Ptolemaic (and Pharaonic) method of dividing the text into columns. To this series would belong the coloured illustration with Eros and Psyche in Florence⁵ of the 2nd century A.D., which is quite Greek in character. But there are Greek illustrations of a much later date, even of the 5th century A.D., such as the drawings in Vienna and Berlin: the latter contain interesting and very vivid sketches on papyrus. In quoting these fragments I aim at showing that the art of decorating papyri in Greek style lived through the vicissitudes of Roman rule in Egypt, and perhaps still flourished after the definitive establishment of Christianity. This art was certainly a descendant of the system of decorating papyri in Pharaonic times; an indebtedness on the part of the Greeks to the Egyptians must once more be acknowledged—the Paris roll is a definitive proof of that. This tradition passed apparently rather quickly from the stage of rolls to that of books.

The new fragment should be considered an excellent example of the latter class of illustrated Greek works; it is unique among the remnants of that art. It may be regarded as the best link in the Hellenistic tradition of decorated papyri. It is far superior to the Florence fragment, indeed I do not think it is possible to find parallels to it among papyri. I should rather point out as analogous to it in style and technical excellence certain textiles of the 4th-5th centuries, e.g., those from Akhmim⁶, composed in a true Hellenistic spirit, and with a similar freedom to ours though evidently based on earlier designs. An exact dating of our fragment is in my opinion not possible, as there are no very close stylistic parallels; besides, the painter was indubitably of the first order,

¹ Ch. H. Oldfather, *The Greek Literary Texts from Graeco-Roman Egypt*, Madison, 1923.

² Not in papyri: in a letter of Theophilus to Zenon, the first, who was a painter, tells Zenon that he has finished his works and asks him *εἰ καὶ ὁ ποιητὴς σοὶ εἰσὶν τινα τῶν Πινάκων*. This was during the Ptolemaic period. From the Roman period comes another document, an order of payment to a painter for a portrait he has executed: *Pap. gr. e lat.*, VIII, 1927, 85, note to Nos. 919, 920.

³ *Pap. gr. e lat.*, VIII, 87, No. 920.

⁴ *Pap. gr. e lat.*, VIII, Part I, No. 919.

⁵ Pap. Rainer, Inv. No. 8760.

⁶ Kendrick, *op. cit.*, Pl. xvii.

and individual ability must be taken into account. The lettering appears to indicate a date of about A.D. 500. This would be too late a dating on stylistic grounds, for I pointed out that not a few of its details are to be found in Late Hellenistic works. The comparison with textiles is also very useful, and still other minor points may be added. The hanging locks of the charioteers may be compared to those of some figures of the Ambrosian Iliad¹, which is probably a work of the 4th century A.D., though perhaps a copy from an earlier cycle of pictures; and the outlines of the locks have a parallel in the hair-dressing of some figures in a wall-painting from Wâdi Sarga² of the 6th century.

Taking into account what has been previously said, these details, and at the same time the rapid decay of Hellenistic style and subjects in Egypt in the 5th-6th centuries, and the excellence of our painter, I should propose as date for this fragment the 5th century A.D., and even its first half.

Its importance lies in the fact that as a fragment of a papyrus-book it is one more proof, and this time a strong one, if not the strongest hitherto known, that ancient, *i.e.*, Greek and Roman, illustrative art had its origin in Egypt, and probably especially in Alexandria. It is to be deplored that no other fragments of the same book were found. An iconographic cycle might perhaps have been re-established, possibly by means of parallels to mosaics and textiles, and an important tradition traced back to Alexandria, though the technical excellence of the painter would oblige us to consider the fragment as an original work. At any rate, a first-class Late Hellenistic papyrus-book illustration of Roman life has been recovered from the soil of Egypt.

¹ Fol. 40 recto, 22 verso.

² *Brit. Museum Guide to Early Christian Art.*, fig. 70.

THREE ROYAL SHABTIS IN THE BRITISH MUSEUM

By H. R. HALL

With Plates ii and iii.

The three royal shabtis described below have already been published by Sir Ernest Budge, but in view of their great interest, I reproduce them again here with new and fine photographs which bring out their details fully. At the same time the inscriptions are given to make the publication complete; that of 21922 has not been published before.

1. The shabti of Aḥmōse (Amosis) I, No. 32191, Pl. ii, is not only one of the finest known but also one of the oldest, and is of special interest as being that of a king. It is of a very fine cream-coloured limestone. The body is in mummy form with the arms crossed under the bandages, from which the hands emerge; they carry nothing. Probably it was

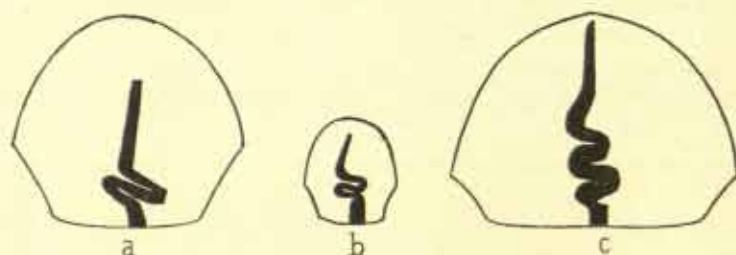


Fig. 1

originally intended to paint the usual hoes on the surface of the shoulders, but there are no traces of paint. The head wears the *nemes*-headdress, not ribbed or banded. The pigtail is rather long and thick. The shoulder-flaps follow slightly the curvature of the shoulders. The top-fold has a little of the curvature, giving a slightly horn-like appearance to the corners above the ears, which Evers notes as a characteristic of the later Middle Kingdom (*Staat aus dem Stein*, II, 14). There is a band round the forehead. The uraeus (head broken off) has a triple convolution (Fig. 1c). A shortish, square-cut beard is worn. The face has distinct character, especially about the eyes and the cheeks above the corners of the mouth. Unluckily the face is slightly injured, the nose specially being damaged. The beard and one of the lapels of the headdress are also chipped, and the forepart of the feet is missing; there are also some chips out of the back. The inscription, containing the VIth chapter of the Book of the Dead, is shown in Fig. 2. The signs are finely cut, in a style recalling that of the Middle Kingdom. Note such contrasts in size as the *p* and *t* in the second line; the *p* is six times the size of the *t*.

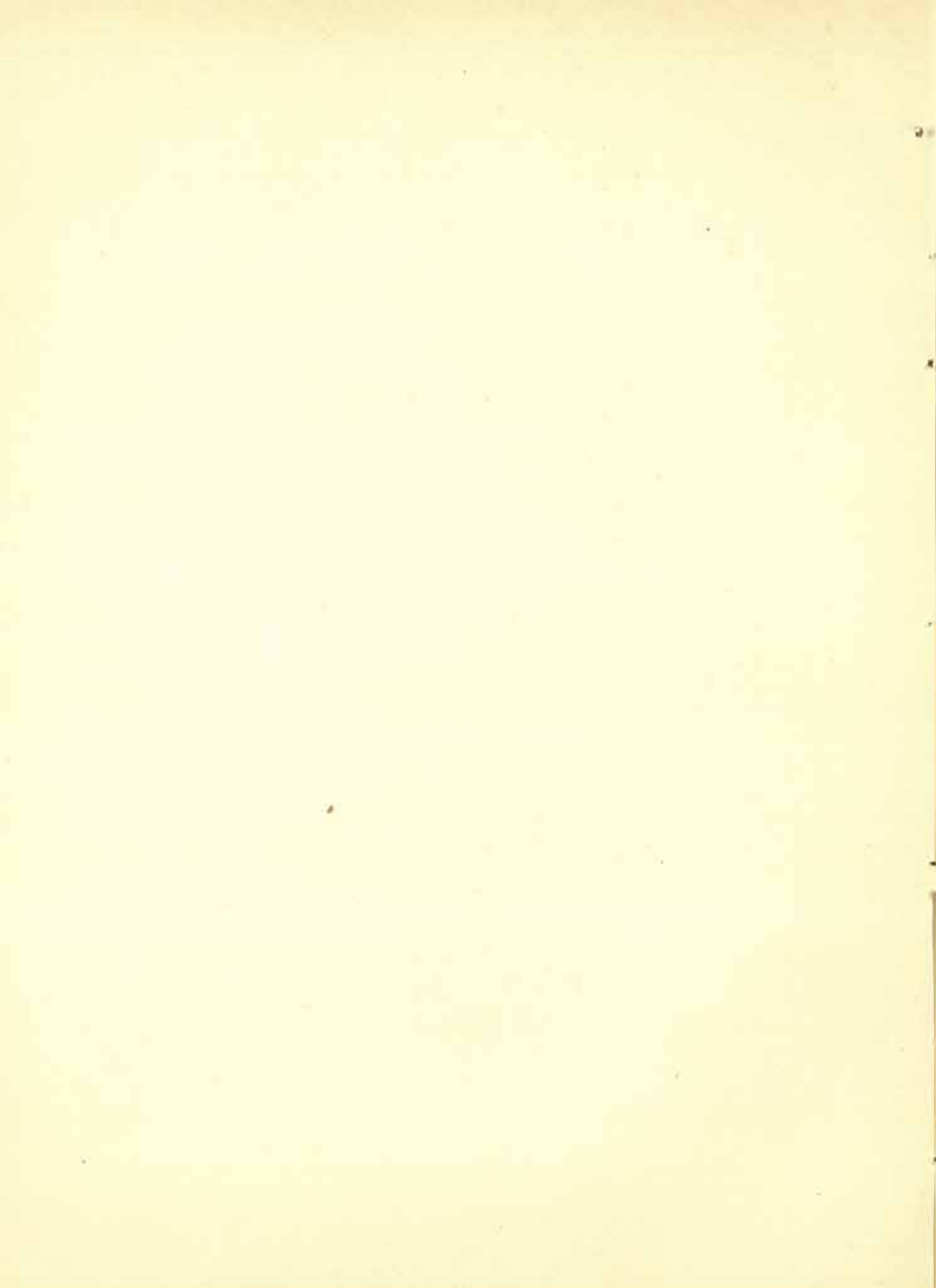
Ht. 11½ ins. (28.5 cm.). Published: photograph only, Budge, *Hist. Eg.* (1901), III, 185; *The Mummy* (1925), Pl. xx; inscription only, *id.*, *The Mummy*, 252.

2. The shabti of Amenophis II, No. 35365, Pl. iii, figs. 1 and 4, is of a soft grey serpentine, but has not the great artistic and historic interest of 32191. The body is in



Shabti-figure of Amosis I.

Scale c. $\frac{1}{2}$.





1



2



3



4

1 and 4. Shabti-figure of Amenophis II. Scale $\frac{1}{2}$.
2 and 3. Shabti-figure of Psamatik I or II. Scale $\frac{1}{2}$.

mummy form with the arms and hands as in 32191, the latter holding each an *ankh* upright. The *nemes*-headdress is banded with simple striations. The pigtail is of the usual Eighteenth Dynasty type, rather short and ribbed. The shoulder-flaps are straight. There is still a little of the horn-like curvature at the upper corners of the folds. The uraeus (damaged) came down lower over the forehead band than that of 32191; it has only a double twist (Fig. 1a). The beard is rounded and long, and the end is broken off. We know what Amenophis was like, and there is no visible resemblance in the face of this shabti, though an attempt has perhaps been made to make it like by giving the nose an exaggeratedly high bridge with the effect that, now that its end has been broken off, it looks like a particularly aggressive snub. No doubt the high nose of the Tuthmosids was intended, but the face is roughly cut, like the rest of the figure, and is otherwise entirely conventional and without character. The figure is slightly damaged by chips on the back, the right side of the headdress, the beard and the uraeus. The feet are intact but for unimportant chips.

The inscription is shown in Fig. 3. It is roughly and carelessly cut. Ht. 11½ ins.

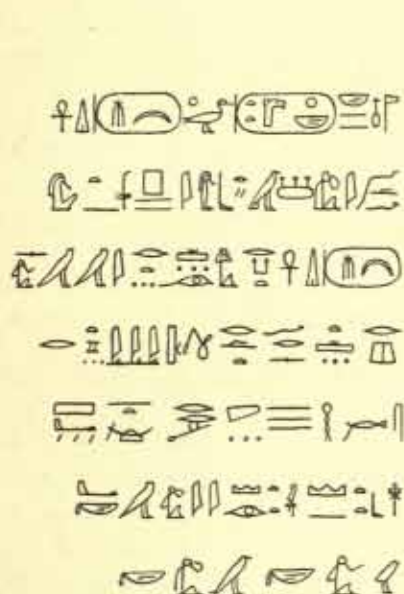


Fig. 2

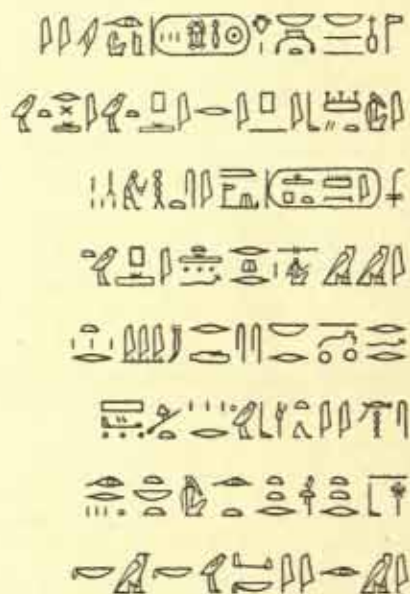


Fig. 3

(28.8 cm.). Published: photograph only, Budge, *Hist. Eg.*, iv, 71; *Guide to 4th-6th Eg. Rooms*, 5; inscription only, *id.*, *The Mummy*, 253.

3. The shabti of Psamatik I or II (the throne-name is not given), No. 21922, Pl. iii, figs. 2 and 3, is interesting for its portrait. It is of glaze-ware, originally pale blue, now discoloured. Like the others, it is in mummy form, wearing the *nemes*, which is plain. The flaps follow the curve of the shoulders. The pigtail is shortened by the square-topped plinth ¾ in. (2 cm.), wide at the back. There is no beard. The head is perfect except for some damage to the uraeus, which has two convolutions (Fig. 1b). The lower part of the figure is broken off. The hands hold, the right a hoe, the other a hoe and the rope of a basket which hangs by a loop over the left shoulder.

The portrait is strongly characterized with thick lips and heavy nose of Ethiopic

cast. It is not like the portrait of Psamatik I on the intercolumnar slab from a Delta-temple in the British Museum (No. 20), published *Cambridge Anc. Hist.*, *Plates*, 1, 271 (b), II, 15 (a), which is thin-lipped with a long upper lip and a flat bulbous-ended nose, and is obviously a careful portrait. It is therefore probably a portrait of Psamatik II, to whom the shabti should thus be assigned. It is not like the face of the supposed colossal head of Psamatik II in the Museum (No. 1238), found near the southern end of the Suez Canal in 1906; but this was probably a conventional official portrait without character, which the shabti obviously has.

The inscription, of the usual Twenty-sixth Dynasty type, is shown in Fig. 4. Note

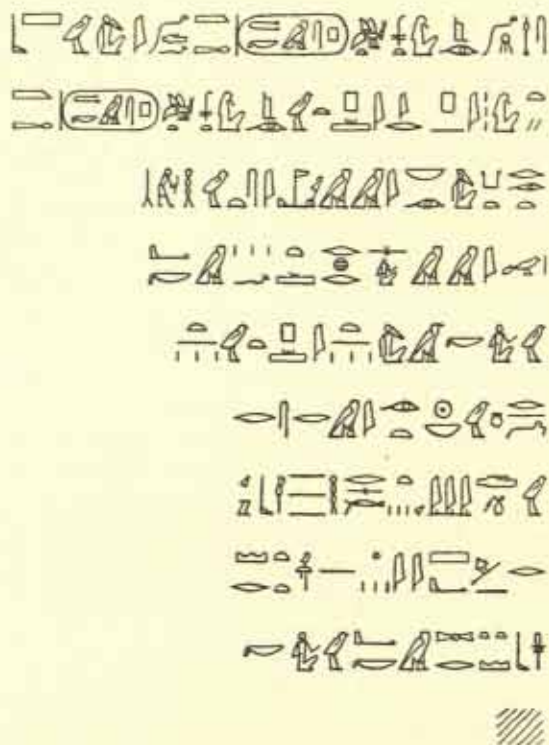


Fig. 4

the error of making the shabti carry sand *from west to east* (sic). Ht. $5\frac{3}{4}$ ins. (14.6 cm.). Published: photograph only, Budge, *Hist. Eg.*, VI, 205.

"CEDAR"-TREE PRODUCTS EMPLOYED IN MUMMIFICATION

By A. LUCAS

The principal references in the works of the Greek and Latin writers to the materials employed by the ancient Egyptians for mummification, taking them in chronological order, are by Herodotus (fifth century B.C.), Diodorus (first century B.C.), Strabo (first century B.C. to first century A.D.) and Pliny (first century A.D.).

Herodotus (II, 86-88) mentions a number of different substances, of which it is proposed to consider one only¹; Diodorus (I, 7; XIX, 6) also mentions a number, of which again only one will be considered²; Strabo (XVI, 2, 45) refers to one, bitumen, which it is not proposed to consider; and Pliny (N.H., XVI, 21; XXIV, 11; XXXI, 46) refers to three, two of which will be dealt with³. The materials chosen for consideration are those derived from the "cedar" tree.

Herodotus states (II, 87) that in a particular method of mummification a material he terms both τὸ ἀπὸ κέδρου ἄλειφαρ γινόμενον and also κεδρίη was injected into the intestines. Both these expressions are usually translated as "oil of cedar," but literally they mean a substance of an oily or fatty nature derived from the "cedar" tree and a "cedar"-tree product respectively. Diodorus (I, 7) says that during the process of mummification the body was anointed with κεδρία, usually also translated as "oil of cedar," but meaning merely a "cedar"-tree product.

Pliny (N.H., XVI, 21) states that a material he terms *cedrium* ("cedar" material) was used by the Egyptians for preserving their dead and also (XXIV, 11) that *cedri succus* ("cedar" juice) was used for preserving dead bodies.

The "Cedar" Tree.

The first step in the identification of the materials referred to is manifestly to ascertain, if possible, whether the tree in question was indeed a cedar and, if not, what kind of tree it was. Almost certainly, however, it was a conifer, since although the term "cedar" has been, and still is, applied to many trees other than the true cedar, so far as is known to the writer the word was never used anciently for any tree that was not coniferous.

Two writers who help in this matter are Theophrastus and Pliny, since they not only mention the "cedar," but describe it; and these descriptions may now be considered. Before doing so, however, the true cedars, of which there are three kinds, may usefully be enumerated; they are respectively (a) the cedar of Lebanon (*Cedrus Libani*); (b) the Atlas cedar (*Cedrus atlantica*) and (c) the Indian cedar (*Cedrus deodara*).

¹ The others are palm wine, spices, myrrh, cassia and natron.

² The others are palm wine, spices, ointments, myrrh, cinnamon and bitumen.

³ The third is natron. *The Elder Pliny's Chapters on Chemical Subjects*, K. C. Bailey (1929), I, 53, 172-173.

Theophrastus distinguishes three kinds of "cedars" (κέδρος)—namely, prickly "cedar"¹, Syrian "cedar"² and Phoenician "cedar"³—all of which have been identified as junipers⁴, namely *Juniperus oxycedrus*, *Juniperus excelsa* and *Juniperus phoenicea* respectively.

Pliny (XIII, 11) describes two "cedars" (*cedrus*), one of which he calls the small "cedar" and the other the large "cedar," of each of which he states there were two kinds. One of the small "cedars" he says grew in Lycia and the other in Phoenicia; the second of these is described as being very like a juniper and probably was a juniper, namely *Juniperus phoenicea*. One of the small "cedars," too, though which is not stated, is described as being prickly and is termed *oxycedros*, and was, therefore, almost certainly not a cedar, but *Juniperus oxycedrus*. The large "cedars" are not described in sufficient detail to allow of positive identification, but they, too, may have been junipers. The fruit and berries of the "cedar" mentioned (XIII, 11; xv, 7; xxiv, 11, 12) suggest juniper berries and not cedar cones, and the medicinal properties ascribed to "cedar" fruit are practically identical with those given for juniper berries (xxiv, 36).

Since by the word cedar both Theophrastus and Pliny almost certainly meant, not the true cedar, but a juniper, it is probable, therefore, that other classical writers, Herodotus and Diodorus for instance, may have used the term cedar in the same sense. Even at the present day a similar confusion exists, and the fragrant red wood called cedar employed for making pencils, cigar boxes and other objects, is usually that of the American cedar, which is not a cedar, but a juniper (*Juniperus virginiana*). The modern oil of cedar, too, is generally a product of this same tree, though a volatile oil from the Atlas cedar is also known and is used as a medicament.

At this stage the subject may be approached from an entirely different aspect, by examining the materials yielded by coniferous trees, especially the cedar and the juniper, and asking whether any of them are oils or of an oily nature. With regard to this last point, however, it may be mentioned that the terms oily and fatty were sometimes employed by the classical writers to describe materials that are not oily or fatty in the modern sense, but which are better described as unctuous or soapy. Thus, Theophrastus (v, ix, 8; ix, i, 3) states that certain wood sap was of an oily character and that certain plant juices were fatty, and Pliny (*N.H.*, xxxi, 46) refers to natron as being of an oily nature. The fact, therefore, that the material mentioned by Herodotus is termed oily does not necessarily mean that it was an oil in the strict sense of the word.

In order to make the matter perfectly clear, it becomes necessary, before dealing with the specific points mentioned, to consider briefly oils in general, including their mode of production. Oils are obtained from three fundamentally different sources, namely, animal, mineral and vegetable, but in connexion with the present enquiry the two former may be omitted. For the present purpose vegetable oils may be divided into three classes: (a) Fixed Oils, (b) Volatile or Essential Oils and (c) Oil of Turpentine.

Fixed Oils.

These include such oils as olive oil, linseed oil and a very large number of others that are obtained from fruits and seeds, at the present time chiefly by pressure, though anciently sometimes by the more primitive practice of boiling the material in water and

¹ *Enquiry into Plants*, Ed. A. Hort, Loeb Classical Library, I, v, 3; I, x, 6; III, vi, 5; III, x, 2; III, xii, 3; III, xiii, 7; IV, iii, 3; IV, v, 2; IV, xvi, 1; v, iii, 7; v, iv, 2; v, vii, 4; v, ix, 8; ix, i, 2.

² *Op. cit.*, III, ii, 6; IV, v, 5; v, vii, 1; v, viii, 1.

³ *Op. cit.*, III, vi, 5; III, xii, 3; v, vii, 4; ix, i, 2; ix, ii, 3.

⁴ *Op. cit.*, Index, 455-456.

skimming off the oil that rose to the surface. Pliny (*N.H.*, xv, 7) refers to this latter method having been employed in his day for the production of castor oil, though for most oils pressure was used.

The only fixed oil from coniferous trees is that yielded by the seeds, which, although obtained from several kinds of conifers (cypress, fir, pine and spruce), is termed "fir-seed oil". This oil is not a regular commercial product, but has been produced experimentally, and there is no evidence and little probability that it was known anciently; and, although Pliny (*xiii*, 11; *xv*, 9; *xxiv*, 10, 36) mentions the seeds of various conifers ("cedar," pine, cypress and juniper), he makes no reference to oil having been extracted from them. It is practically certain, therefore, that, whatever the "cedar" product of Herodotus and Diodorus may have been, it was not a fixed oil of any coniferous tree.

Volatile or Essential Oils.

These are volatile, odoriferous bodies of an oily nature, such as oil of roses, oil of lavender, oil of juniper, oil of pine, oil of fir, oil of cedar, and numerous others, which are employed principally as perfumes and flavouring agents, though sometimes as medicaments. They are extracted at the present day from various plant products (bark, flowers, fruit, leaves, root and stem), either by distillation with steam or by means of solid fat or oil, the odoriferous principles in the latter case being removed from the fat or oil by alcohol, the final product being not the pure volatile oil but an alcoholic solution of it.

Many volatile oils were known anciently, including oil of roses, oil of narcissus, oil of cinnamon and others; they were extracted by steeping the odoriferous material in fixed oil or by boiling it in oil, the result being a perfumed oil that was used as a cosmetic². The oil of cypress mentioned by Pliny (*N.H.*, xv, 7; *xxiii*, 45)—which unfortunately is not described, but merely referred to as a medicament—was probably of this type, since, as already shown, it is most improbable that a fixed oil of any conifer was made at that period, and since, also, a volatile oil of cypress does exist and is prepared at the present time by the steam distillation of the leaves.

In addition to oil of cypress, Pliny also mentions oil of "cedar," but his account of this is very confused; thus in *N.H.*, xv, 7 he says that it was obtained from the fruit and in *xxiv*, 11 from the pitch, and he calls both these products pitch oil (*pisselacon*). As already stated, Pliny's "cedar" was probably a juniper, and a volatile oil of juniper is prepared at the present day, under the name of oil of cedar, by the steam distillation of the wood of the American juniper; but this was certainly not known anciently. Pliny appears to have confused two different juniper oils, one from the berries—and therefore volatile, since these do not contain a fixed oil—and the other, also volatile, though of a different kind, prepared from the resinous exudation ("pitch") of the tree, which latter will be dealt with in connexion with oil of turpentine.

Since a volatile oil of juniper, prepared from the berries, was possibly known in Pliny's time, it becomes necessary to enquire whether the cedar product mentioned by Herodotus and Diodorus (which has been shown to have been probably from the juniper) may have been this oil. Herodotus states that the material was injected into the intestines, where it remained during the period that the body was in the natron bath,

¹ J. Lewkowitsch, *Chemical Technology and Analysis of Oils, Fats and Waxes* (1914), II, 140-141.

² Theophrastus, *op. cit.*, *Concerning Odours*, 14-20. Pliny, *op. cit.*, *xiii*, 2; *xv*, 7.

after which it was allowed to escape, carrying with it the inner parts and intestines in a liquid condition. That any such action could have been brought about by the agency of an oil like that now being considered is impossible; it might, however, have been caused by the natural processes of decomposition, acting during the time that the body was in the bath, aided possibly by the natron of the bath, if this could have gained access to the abdominal cavity, and might have been wrongly ascribed to the injection. The uselessness and unsuitability, however, of an odoriferous volatile oil dissolved in a fixed oil (which any ancient oil of juniper berries must have been) for injecting into the body makes it improbable that this was the material employed, and this and all other oils of the same kind may reasonably be dismissed from the enquiry.

Diodorus states that the material he refers to was used for anointing the body after the abdominal contents had been removed. An oil of juniper of the kind described would have been very suitable for this purpose, the fixed oil that served as a vehicle for the volatile oil being well fitted for anointing purposes, while the dissolved volatile oil would have imparted to it a pleasant fragrance. But, in view of the difference of opinion between this writer and Herodotus as to the method of use of the cedar product, and hence of its nature, it is by no means certain that such an oil was ever used.

Oil of Turpentine.

A special volatile oil known as oil of turpentine, spirits of turpentine, or simply turpentine, is obtained from the resinous exudation (turpentine)¹ of various conifers and also from resinous wood, in both cases by means of steam distillation, the product from the wood, however, being termed wood-turpentine oil. The solid residue remaining after the oil of turpentine has been removed is called rosin and will be dealt with later.

Since the resinous exudation (oleo-resin) of certain coniferous trees was well known anciently and is described by both Theophrastus and Pliny, the former terming it moisture (*ὕγροτης*, IX, 1.2); juice (*ὀπός*, IX, 1.1); resin (*ῥητίνη*, IX, 1.6; 2.1; 3.4), or pitch (*πίττα*, IX, 2.3 and 6, 3.1, 2 and 4), and the latter juice (*succus*, XIV, 25; XVI, 19); resin (*resina*, XIV, 25; XVI, 16-19), or pitch (*πίξ*, XIV, 25), and since crude methods of distillation were known as early as the fourth century B.C.², it is not surprising to find that, certainly in Pliny's time if not earlier, oil of turpentine was known. Thus, this writer states (*N.H.*, xv, 7) that an oil which he terms *pissinum* (pitch material) was prepared from "pitch" (one of the names he gives to the resinous exudation of the conifers), and he describes the process, namely, by boiling the "pitch" (manifestly, therefore, a liquid or semi-liquid), catching the volatile matter in fleeces spread over the vessels and recovering a yellow oil by wringing out the fleeces. Such a product could only have been an impure oil of turpentine. The oil, too, called *pisselaen* (pitch oil), mentioned by this same writer (*N.H.*, xxiv, 11) as obtained from "cedar pitch," must have been a similar impure oil of turpentine, and its Greek, instead of Latin, name indicates a Greek origin and a correspondingly early date.

To judge by the uses of the "cedar" products referred to by Herodotus and Diodorus, the former might possibly have been oil of turpentine, but not the latter, since this would have been most unsuitable for anointing purposes.

¹ The original name of the natural exudation was turpentine, and it is only comparatively recently that the name of the oil prepared from it became shortened from oil of turpentine to turpentine. Even yet the natural product is termed turpentine scientifically, and certain kinds are still known as turpentine commercially, for example, Venice Turpentine.

² Aristotle, *Meteorologica*, II, 2.

Other materials besides fixed and volatile oils and oil of turpentine that may be obtained from coniferous trees are (a) rosin and (b) the products of the destructive distillation of the wood, which may now be considered.

Rosin.

The residue left when the more volatile portion of the semi-liquid resinous exudation of certain coniferous trees is removed by slow evaporation or by quick distillation is called rosin. This is a solid, translucent, brittle mass, of a yellow, reddish-brown or sometimes almost black colour, belonging to a class of bodies termed scientifically colophony and commercially rosin. From theoretical considerations alone, it would appear highly probable that rosin was familiar to both Greeks and Romans, since, as already shown, the resinous exudation from coniferous trees was well known, and if this is merely stored in a warm place for a considerable time, the greater part of the oil of turpentine evaporates and rosin is left. But that it was well known can be proved. Thus, although Theophrastus does not specifically mention rosin, he refers (ix, 2, 5) to the boiling of the "pitch" (resinous exudation) of certain coniferous trees, a process that must have produced rosin. Pliny, too (*N.H.*, xiv, 25; xvi, 22, 23; xxiv, 22), mentions the boiling of resin and "pitch," in both cases meaning the resinous exudation of certain trees; he also states (xiv, 25) that the juice (resinous exudation) of the "cedar" was of the proper consistency for making "pitch" (rosin), and that the "pitch" (rosin) used for preparing vessels for storing wine was made from the resin (resinous exudation) of the "pitch" tree. He also refers (*ibid.*) to "pitch" (rosin) being over-burnt, being broken in pieces and being tested by biting, in all three cases a solid material being manifestly indicated. The rosin prepared by the crude method employed would have been dark coloured and probably often black, even when not over-burnt, an accident that evidently sometimes happened.

From the references given above, it may be seen with what very different meanings both Theophrastus and Pliny employed the terms resin and pitch; and, as will be shown later, another material, tar, was also called pitch. This looseness of expression, however, is not peculiar to the classical writers, but is common even at the present day. Thus the word resin may be used to designate not only the natural resinous exudation from certain trees, whether this be an oleo-resin, a gum resin, a balsam or a true resin, but also the product (rosin) obtained when oil of turpentine is removed by heat from an oleo-resin. Similarly, the word pitch may be used to mean the natural resinous exudation of coniferous trees (oleo-resin)¹, rosin, wood tar, or a solid product obtained from these two latter. A further confusion is caused by the use of the words pitch and tar for certain materials (bitumen and asphalt) which originate in petroleum and are found naturally².

Reverting to rosin, this, when heated in a closed retort, yields various bodies, the principal of which are rosin spirit (a substance very like oil of turpentine) and rosin oil, with, as a residue, pitch (rosin pitch). If, during the crude process of preparing oil of turpentine described by Pliny, the oleo-resin was accidentally heated too strongly, as did

¹ Burgundy Pitch is the modern commercial name for the oleo-resin of the common spruce, and the very name of the spruces (*Piceae*) means Pitch Trees; certain very resinous wood, too, is called Pitch Pine, generally that of *Pinus palustris* (often termed the Pitch Pine), though occasionally that of *Pinus sylvestris*.

² Also at the present time for other materials obtained artificially from coal, which were not known anciently.

occasionally happen (*N.H.*, xiv, 25), some of the rosin formed would have been partly decomposed, with the production of a small proportion of both rosin spirit and rosin oil, which would have contaminated the oil of turpentine. Rosin spirit and rosin oil, too, would also have been unintentionally formed in small amount during the destructive distillation of coniferous wood (about to be described), since the oleo-resin present in the wood would have been decomposed, yielding at first oil of turpentine and rosin, which latter would then also have been broken up, forming rosin spirit and rosin oil. With these exceptions, it is most unlikely that rosin spirit and rosin oil were prepared anciently and very improbable that they were known as separate substances and hence improbable that either of these was the "cedar" product mentioned by Herodotus or Diodorus. Rosin pitch, being a solid body, is excluded on that account.

Coniferous Wood.

When coniferous wood is heated out of contact with the air, it is decomposed, producing various gaseous, liquid and solid bodies. In the crude methods of destructive distillation¹ (as the operation is termed) employed anciently, the gases formed escaped and so need not be considered; the solid residue (charcoal) does not concern the present enquiry and only the liquids will be described.

As coniferous (and other) wood, even though appearing to be dry, contains moisture, this is driven off when the wood is heated, and one of the products consists of an impure watery liquid of an acid character, termed pyroligneous acid, the other liquid products being an oil, of the nature of wood-turpentine oil, and tar, which latter is a black, viscous liquid of complex composition resembling coal tar very much in appearance. Either pyroligneous acid or wood-turpentine oil might well have been the liquid (and from the manner of its use it must have been a liquid) said by Herodotus to have been injected into the body, but neither is suitable for the anointing mentioned by Diodorus. Tar would not have been adapted for either purpose.

Wood tar was known to Theophrastus and Pliny, who both call it "pitch," a term also applied, as already shown by both writers, to the resinous exudation of coniferous trees, and by Pliny also to rosin. Both, too, give a description of the method of obtaining tar from resinous wood by means of a primitive form of destructive distillation.

Theophrastus states (ix, 3, 1-3) that the operation was carried out by making a large pile of logs, covering them with earth and firing them, after having made provision for the escape of the tar, which was collected in a hole in the ground. Pliny, who calls tar both "pitch" (*pix*) and "liquid pitch" (*pix liquida*), states (xvi, 21) that in Europe it was extracted from the torch tree (*Teda*, i.e., *Pinus taeda*) by means of fire, that it was employed for coating ships, and that it was used as a medicament (xxiv, 24) and "for many other useful purposes." He also describes three ways in which it was made, namely, first, by heating billets of resinous wood in a furnace; second, by heating the wood by means of red hot stones in a trough made of strong oak; and third, in a similar manner to that described by Theophrastus (xvi, 22).

¹ Destructive distillation is the process of heating, out of contact with the air, a solid material in such a manner that its original composition is destroyed and new bodies are formed, some of which are volatile and are conducted away, the more liquefiable portions being condensed by cooling. This is the opposite of the more usual method of distillation, in which care is taken to avoid decomposition and only the separation of pre-existing bodies occurs.

According to the method of Theophrastus, the various liquid products were apparently collected together, and the distillate, therefore, would have consisted of an aqueous acid liquid containing oil of turpentine and tar, both of which would largely have settled out on standing, the oil rising to the top and the tar sinking to the bottom. As it would have been difficult to obtain this liquid for use except by baling it out of the hole in the ground in which it was collected, and as the several layers were of such different natures and were probably required for different purposes, the various portions may have been separated; but, if so, any separation made could only have been very imperfect.

Pliny states definitely (xvi, 21-22) that in the operation as conducted in his time the distillate was collected in two fractions, the first being a thin, watery liquid (which must have been pyroligneous acid with a certain proportion of admixed oil of turpentine and tar) and the second tar. The former, he says, was known in Syria as *cedrium* and was employed by the Egyptians for preserving their dead. Since in xxiv, 11 he states that "cedar" juice preserved dead bodies, it becomes necessary to enquire whether *cedrium* and "cedar" juice were the same or different materials. The former has already been described and the identification of the latter may now be attempted.

"Cedar" Juice.

Immediately before mentioning "cedar" juice and describing its properties, Pliny refers to a substance he terms *cedria* and the identification of "cedar" juice depends upon whether it and *cedria* were the same or two different materials. In the writer's opinion the former is the more probable. About *cedria* there can be little doubt; it is described as "pitch" from the "cedar," and was, therefore, almost certainly the natural resinous exudation of the "cedar" (juniper). After mentioning the use of *cedria* for toothache, he refers to "cedar" juice as though the same substance was still being discussed, which is believed to be the case. This is rendered still more probable by the fact that juice is one of the names, and not an inappropriate one, employed by Pliny for the resinous exudation of the conifers (xiv, 25; xvi, 19). The matter then becomes very involved, and, although *cedria* has previously been recommended as a remedy for toothache, the writer now states that he would greatly dread to use "cedar" juice for that purpose. One of the properties, too, of "cedar" juice is said to be that it preserved books, and it is difficult to believe that this can refer to *cedria*, a thick, sticky, resinous material that would have ruined any books on which it had been used. On this point fortunately a helpful sidelight is provided by Vitruvius (writing shortly before Pliny's time), who states that a certain oil (*oleum*) from the "cedar" rubbed on books protected them from insects (ii, 9). An oily material from the "cedar" that could be rubbed on books without damaging them and that protected them from the attacks of insects could certainly not have been *cedria*, but might have been oil of turpentine derived from it. At the end of the chapter, however, Pliny again definitely refers to *cedria*, since he says that *pisselacon* (pitch oil, i.e., oil of turpentine) was produced from the material he was discussing, which, therefore, must have been a natural oleo-resin, that is to say *cedria*. Hence it is believed that *cedria* and "cedar" juice were the same material, which Pliny occasionally confused with one of its products, namely, oil of turpentine. But, if this explanation be accepted, then *cedrium* and "cedar" juice must have been different, and both were employed for preserving the bodies of the dead, the former being specifically stated to have been used by the Egyptians.

Summary.

As the matter under consideration is complex, it may be better at this stage to summarize the conclusions that so far have been reached; they are as follows:

1. The tree termed cedar by Herodotus, Diodorus and Pliny in their references to the material employed by the Egyptians in mummification was certainly a conifer, probably never the true cedar and often the juniper.

2. From a consideration of all the possible coniferous-tree products and by the elimination of those not suitable and those unknown at the time, it has been shown that the material mentioned by Herodotus and Diodorus was not a fixed oil of any conifer, nor rosin spirit nor rosin oil, and that the material of Herodotus was also not volatile (essential) oil of any conifer, but that it might have been impure oil of turpentine or pyroligneous acid, while the material of Diodorus might have been volatile (essential) oil of a conifer dissolved in a fixed oil, but not oil of turpentine nor pyroligneous acid, both of which are most unsuitable for anointing purposes.

3. The materials mentioned by Pliny as used for mummification were *cedri succus*, the natural resinous exudation of a coniferous tree, probably generally juniper, and *cedrium*, which was pyroligneous acid containing a certain proportion of admixed oil of turpentine and wood tar.

Egyptian Evidence.

The evidence from the Egyptian side is as follows:

1. A product of a tree whose name is always translated as cedar is mentioned in at least two papyri of the older period of Egyptian literature, in connexion with mummification, though the authorities differ¹ as to whether this material was an oil or a resin. From the present writer's point of view resin seems more probable.

2. A very large proportion of Egyptian mummies has been treated with resin and, as this, in many instances at least, has manifestly been applied in a liquid or semi-liquid condition, it seems highly probable that it was originally in the form of a natural viscous oleo-resin (possibly sometimes heated to render it more fluid) that has gradually hardened, owing to the loss of oil of turpentine by evaporation, that is to say it has become converted into rosin. Such a material, on account of its nature, cannot have been that referred to by either Herodotus or Diodorus, but it corresponds to Pliny's *cedri succus*, which, as shown, was the natural resinous exudation of some coniferous tree, probably often the juniper. Specimens of this resinous material have been examined chemically by the writer² and by others, but the botanical source has not yet been established, though some of it at least might well be coniferous.

3. A black preservative material from three mummies of Ptolemaic date (in two cases from the skull) has been identified by the writer as wood tar³. This is closely related to Pliny's *cedrium*, since it was produced during the same process and to some extent must have been present in *cedrium* and it is possible that Pliny may have been misinformed as to which of the two portions of the distillate was employed in mummification.

¹ A. H. Gardiner, *The Admonitions of an Egyptian Sage* (1909), 32, 33; A. Erman, *The Literature of the Ancient Egyptians*, Trans. A. M. Blackman (1927), 23, 96.

² A. Lucas, *Preservative Materials used by the Ancient Egyptians in Embalming* (1911).

³ *Op. cit.*, 38, 49.

4. In addition to the resin employed during the actual process of mummification, a black material containing resin and possibly wood tar was sometimes used, probably as a libation, by being poured over the mummy in the coffin and over the viscera in the canopic box¹.

Conclusions.

The conclusions of the whole matter are as follows:

1. The cedar of the classical writers, though always a coniferous tree, was not the true cedar, but often the juniper.

2. Since Herodotus and Diodorus are at variance with respect to the method of use of the materials they mention (one being injected and the other employed for anointing), either they refer to two different substances, or one or other was mistaken. Since we cannot be sure how the material was used (each method requiring a different material), it is impossible to be certain of its nature. If injected, it was probably either impure oil of turpentine or pyroligneous acid containing admixed oil of turpentine and wood tar; if employed for anointing, it was probably volatile oil of juniper dissolved in whatever fixed oil was used to extract it. No Egyptian evidence, however, has been found for the use of any of these materials. In neither case was it a fixed oil of any coniferous tree, since no such oil was then known.

3. The "cedar" juice of Pliny was the natural resinous exudation of some coniferous tree, though not of the true cedar, but probably often of the juniper. For the extensive use of some such material by the Egyptians in connexion with mummification there is ample evidence.

4. *Cedrium* as defined by Pliny was pyroligneous acid containing admixed oil of turpentine and wood tar, for the use of which no Egyptian evidence has been found. The term *cedrium*, however, might not unreasonably have been used to mean wood tar alone, which was certainly sometimes employed by the Egyptians for mummification.

¹ W. M. F. Petrie, *Deshashkeh* (1898), 31; A. C. Mace and H. E. Winlock, *The Tomb of Senebtisi at Lisht* (1916), 17, 18; G. Elliot Smith, Notes on the Mummy, in *The Tomb of Senebtisi at Lisht*, Mace and Winlock, Appendix, 120; Howard Carter, *The Tomb of Tut-ankh-Amen*, II (1927), 79, 81, 83, 85, 87; A. Lucas, in *The Tomb of Tut-ankh-Amen*, Howard Carter, Appendix II, 177; H. J. Plenderleith, in *The Tomb of Tut-ankh-Amen*, Howard Carter, Appendix v, 215-216; an apparently similar material may be seen on the inside of the canopic box of Amenophis II, now in the Cairo Museum.

A "BEAKER" POT IN THE STOCKHOLM EGYPTIAN MUSEUM

By PEHR LUGN

With Plate iv, fig. 1.

In consideration of the rarity of "beaker" pots in Egypt readers of the *Journal* will no doubt be interested to learn that the Stockholm Egyptian Museum possesses one such vessel. It was recently presented to the Museum by Major Gayer Anderson, who acquired it at Edfu.

As the photograph shows, the pot has lost the upper part of its rim. When unbroken it must have had a flared mouth, and it consequently belongs to the same type as the vases in Petrie, *Prehistoric Pottery Corpus*, xxvii, 58 and G. Brunton, *The Badarian Civilisation*, Pl. xvi, 24. At Tasa two more or less whole vessels of this type as well as many fragments have recently been found¹. Major Gayer Anderson tells me that Mr. Brunton, who has seen the pot, attributes it to the newly discovered Tasian civilization. Except for the loss of the rim the vessel is very well preserved. The walls are very thick—0.7 cm. at the fracture. The present greatest height is 15.5 cm., and the diameter at the break is 8 cm. The colour of the clay as seen in the fracture is uneven, the outer part of the wall being grey, the inner brownish. The outside of the pot is polished and is of a very uneven dark greyish-brown colour with black patches. Judging from the remainder, the inside of the mouth seems not to have been polished, only smoothed. The interior of the pot has a rather lighter grey-brown tint; at the bottom there are some remains of the original contents. The vessel is incised with an irregular ribbon pattern, that closely resembles the decoration of the bag-shaped pot from the von Bissing collection published in this *Journal* by Professor Scharff². In the Stockholm pot however the pattern is not filled with punctured dots but with incised lines filled in with white. The inside of the mouth has also been decorated, remains of the same angular ribbon pattern being distinguishable in two places. At one side there is a hole bored close under the mouth; the corresponding part at the other side being lost, it is impossible to say if there has been a second hole.

¹ G. Brunton, *Antiquity*, 1929, 466. Related in form to these prehistoric "beaker" pots, though wider and lower, are the bag-shaped pan-grave pots with flared mouths in black-topped red ware found by Petrie at 'Abadiyah (*Diospolis Parva*, Pl. xxxviii, second row to the right). Appearing among this backward people that had kept so many other prehistoric traits these vessels may well be regarded as a late variety of the prehistoric pots in question, though made in a different ware.

² xiv, Pl. xxvii, 1.



1



2

3



4



5

1. Tasian pot, now in Stockholm. *Scale* $\frac{1}{2}$.
 2 and 4. Marriage scarab of Amenophis III. *Scale of fig. 4,* $\frac{1}{2}$.
 3 and 5. Historical scarab of Tuthmosis IV. *Scale of fig. 3,* $\frac{1}{2}$.

HISTORICAL SCARABS OF TUTHMOSIS IV AND AMENOPHIS III

By ALAN W. SHORTER

With Plate iv, figs. 2-5.

The two scarabs reproduced in Pl. iv, figs. 2-5 are in the possession of the Rev. G. D. Nash of Cliftonville, Thanet, and I am greatly indebted to him for his permission to publish them. I have also to thank Dr. Hall, Mr. Glanville and Dr. De Buck for various suggestions for the interpretation of the text here discussed.

The smaller scarab is of steatite, not very well carved (Pl. iv, figs. 3, 5), and measures 2×1.48 ins. (51×38 mm.). All glaze has perished. On the base are incised with considerable skill eight lines of inscription, a hand-copy of which appears in Fig. 1.

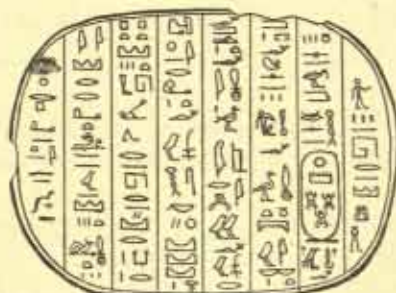







Fig. 1. Scale 1/1

TRANSLATION.

The princes of Naharin bearing their gifts behold Men-kheperu-Rê as he comes forth^a from (?) his palace, they hear his voice like (that of) the son of Nût, his bow in his hand like the son of the successor of Shu^b. If he arouses himself^c to fight, with Aten before him^a, he destroys the mountains, trampling down the foreign lands, treading unto Naharin and unto Karoy, in order to bring the inhabitants^c of foreign lands like subjects to the rule^f of (?) Aten for ever.

TEXTUAL NOTES.

- (a) . These two signs are doubtful.
- (b) . The feather is made wrong way round.  is a short writing of  (Wb. d. acq. Spr., iv, 8) "successor." The successor of Shu was Geb, and so the Pharaoh is being spoken of as the son of Geb and Nût, in accordance with traditional ideas.
- (c)  is certain and we thus seem to have a hitherto unknown reflexive use of the verb *rw*. "If he extends himself to fight" must mean "if he arouses himself to fight." The form with double *w* is strange.

(d) *itn r hit-f*, subordinate clause with adverbial predicate. In *itn* the sign \odot apparently stands where \ominus is expected. *sw sksk*, pseudoverbal construction after pronominal compound (Gardiner, *Eg. Gramm.*, §330), the preposition *hr* (or else *r* with future meaning) being omitted.

(e) *wnnw* "inhabitants" followed, apparently, by genitival *n*. The reading of the last word in the line presents considerable difficulty, but it seems fairly certain that the sign 𓂏 (*rhyt*) is intended, as some word with this meaning is almost demanded by the sense. The bird's wing, as may be seen from the photograph, is represented merely by a tick. The interpretation given of ll. 7-8 does not seem wholly satisfactory, but I cannot think of anything better. Professor Peet suggests that in l. 7 we might read *r rdt wn n; n hitet* "to cause that these countries should be...", *wn* being *sdm-f* after *rdt*. It is, however, difficult to fit the last line on so as to make any sense.

(f) The first sign is undoubtedly \ominus . The long sign after *itn* is puzzling; it might possibly be a meaningless 𓂏 .

GENERAL COMMENTARY.

It will at once be seen that the inscription on this scarab is of the first historical importance. Already students have suggested that the religious and artistic revolution of Akhenaten had its roots in the reign of Tuthmosis IV. For this theory there exist several pieces of evidence, all of a rather uncertain nature. They are:

1. Akhenaten seems to refer to Tuthmosis IV in a much damaged passage of the boundary stelae¹.

2. A fragment from El-'Amarnah shows Akhenaten offering to Aten, the god being described as dwelling in the house of King Menkheperurē in the house of Aten in Akhetaten².

3. The ushabti-figures of Tuthmosis IV alone resemble those of Akhenaten in bearing merely the king's name and no magical text.

4. The art of Tuthmosis' reign shows the appearance of new realistic forms, etc.³

5. Objects bearing the name of Tuthmosis IV have been found at El-'Amarnah⁴.

Now, however, we have in this scarab definite proof, not only that the Aten was already regarded as a separate and distinct form of the sun-god by Tuthmosis IV, but that he was actually worshipped as a god of battles who gave victory to Pharaoh and ensured his pre-eminence over the rest of the world, making all mankind the subjects of the Disk.

What then is this scarab designed to commemorate? Perhaps a campaign in Syria-Palestine, probably that which we know him to have conducted early in his reign⁵, or else a visit of Syrian princes with tribute. In any case the text is strangely vague, lacking the formal beginning usual on the Amenophis scarabs, and also reference to any special incident, so that we are quite unable to come to a decision on this point. But that the object and its inscription are genuine there is no doubt whatever.

¹ Davies, *El Amarna*, v, 31.

² Re-published (from Wilkinson) by Schäfer in *A.Z.*, LV, 33.

³ Davies, *Bull. Metr. Mus. N.Y.*, XVIII, Dec. 1923, II, 40 ff., and Frankfort, *The Mural Painting of El 'Amarnah*, 29.

⁴ Frankfort, *ibid.*

⁵ Breasted, in *Cambridge Ancient History*, II, 91; Hall, *Ancient History of the Near East*, 255.

On the great subject of the origins of Atenism which this document brings once more before Egyptologists I prefer not to enter now, but will content myself with simply presenting this new fact for the study of that ill-fated movement.

The second scarab (Pl. iv, figs. 2, 4) is a marriage-scarab of Amenophis III, which must be added to the list of his historical scarabs existing in various collections throughout the world. It measures 3.4×2.3 ins. (87×59 mm.), and is in a very fair state of preservation; the blue or green glaze has faded to a rich red-brown. The text does not diverge from that found on the other marriage-scarabs. Note, however, the full spelling $\overline{\square} \text{A} \text{—} \text{A} \text{—} \text{A} \text{—} \text{A} \text{—} \text{A}$ in the last two lines.

Note. The scarab of Tuthmosis IV is said to have been formerly in the possession of Grébaut.

KEFTIU

By G. A. WAINWRIGHT

With Plate v.

It is now many years since I published an analysis of the Egyptian frescoes showing the arrival in Thebes of the embassies from the land of Keftiu¹. The Keftiuans appear in the three tomb-chapels of Menkheperresenb, Amenemheb, and Rekhmirê. In the first they come with the chiefs of the Hittites and of Tunip, a city not far from Aleppo²; in the second they again come with Syrians, who on this occasion are the people of Upper and Lower Retenu; in the third they come with the people "of the Isles in the midst of the Sea."

The result of this original enquiry was to show³ that Keftiu was situated in Cilicia, and, as seemed probable then, especially East Cilicia; Keftiuian dress was similar to that of the Philistines, and also had resemblances to the Syrian and, so far as the boots and the curls are concerned, to the Cretan also; Caphtor was not Crete, but more probably some country in Asia Minor; the embassy of mixed Keftiuans and Islanders (Cretans) depicted on the walls of Rekhmirê represents essentially the same combination as the Cherethites (Cretans) and Pelethites that we know in the Old Testament record.

Since the original article was written a great deal more information has been made public. In the first place Mr. Davies has published the fresco in the tomb of Useramûn⁴. Here people appear who are visibly the same as those in Senmut, and this time they are fortunately named. They are not called Keftiuans, but people "of the Isles in the midst of the Sea," the name that I originally ventured to ascribe to the unnamed people of the Senmut fresco⁵. Still more recently Mr. Davies has published the new picture of the Keftiuian⁶. Then, Peet has worked over in great detail the famous hieratic writing-board giving instructions how "to make names of Keftiu⁷." This has enabled him to give an improved reading in one case (*Bndbr*) which turns out to be of the utmost importance. During the same period Dr. Hall has made a suggestion as to the dividing of the syllables in the spell "in the speech of Keftiu," which is productive of much. Finally Dr. Sundwall has published his great collection of material bearing on the names of southern and western Asia Minor⁸. The time therefore seemed ripe to return to the study of Keftiu.

¹ *Liverpool Annals*, vi, 24-83 and Pls. ix-xvii.

² Breasted, *Ancient Records*, III, § 319. For a village called Dounibé about 30 kilometres south-east of Hama, see R. Dussaud, *Topographie historique de la Syrie antique*, 109, and map viii.

³ *Liverpool Annals*, vi, 75.

⁴ Davies, *Bull. of the Metropol. Mus. of Art*, March 1926, *The Egyptian Expedition 1924-1925*, 44-46, and figs. 1, 6 A, E.

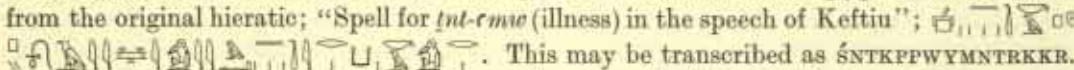
⁵ *Liverpool Annals*, vi, p. 45, § 19, p. 75.

⁶ Fig. 23 of my companion article in *J.H.S.*, 1931 = Davies, *op. cit.*, Nov. 1929, *The Egyptian Expedition 1928-1929*, 41, fig. 5, and *cf.* figs. 1, 2.

⁷ *Essays in Aegean Archaeology presented to Sir Arthur Evans*, 90-99.

⁸ *Die einheimischen Namen der Lykier nebst einem Verzeichnisse kleinasiatischer Namenstämme*, published as the 11th Beiheft of *Klio*, 1913, quoted hereinafter as "Sundwall."

This study is divided into two parts, the present article, and one which is appearing in the June number of the *Journal of Hellenic Studies*¹. The present article is taken up with a discussion of the two pieces of literary evidence, the spell "in the speech of Keftiu" and the instructions "to make names of Keftiu." Its companion contains a great deal of information about the civilization and dress of the Keftiuans and their relationship to the Philistines, for these are all subjects upon which attempts have been made to establish the identity of Keftiu with Crete. This thesis has been elaborated by students of Cretan archaeology, and the discussion of it deals primarily with material collected from outside Egypt, mostly from Asia Minor and the neighbouring countries. Hence the refutation of these ideas concerning Keftiu and Crete finds its natural home in a journal devoted to the archaeology of Greek lands. Last year Mr. Pendlebury, another student of Minoan things, published in this *Journal*, xvi, 75 ff., a long attack on my position that Keftiu was Cilicia, and reaffirmed the Cretan theory. My reply thereto falls into its place in the other article, and there I deal with Mr. Pendlebury's statements along with those of the other adherents to this school of thought.

Let us begin with the spell "in the speech of Keftiu." It occurs among many others in the London Medical Papyrus, which was written about the year 1200 B.C.², and the following is the translation of the heading and Wreszinski's hieroglyphic transcription from the original hieratic; "Spell for *int-eme* (illness) in the speech of Keftiu"; . This may be transcribed as ŠNTKPFWYMNTRKKR.

Dr. Hall has already suggested with much reason that the last letters *trkk(r)* may represent the name of the god Tarku³, which he quite rightly says "often occurs in such Cilician names as Tarkondemos and Trokombigremis, and is paralleled in the Etruscan Tarquinius." To these might be added Tarhundaraba the name of the king of Arzawa to whom one of the Tell el-Amarnah letters was written⁴. The other evidence that Arzawa was Cilicia has been conveniently collected in Mayer and Garstang's work on the Hittite geographical names⁵. There is, however, another god besides Tarku who is peculiarly identified with Cilicia, and he is Sandas or Sandon. In fact he is a god of exceptionally limited range, and, except for a secondary focus in Lydia⁶, and a curious group of Persian names⁷ which are outside our purview, he is to be found only in Cilicia, but there he appears quite commonly. Moreover, he is now known to have been

¹ Quoted here as *J.H.S.*, 1931.

² Wreszinski, *Der Londoner medizinische Papyrus*; Spell 32, pp. 151, 152 and 192. For the date see p. xiv.

³ *Aegean Archaeology*, 230.

⁴ J. A. Knudtzon, *Die el-Amarna-Tafeln*, no. 31.

⁵ Mayer and Garstang, *Index of Hittite Names*, 7, 8 (published as *Supplementary Papers*, 1, 1923, of the British School of Archaeology in Jerusalem).

⁶ There was a little group of places on the coast just outside the Lydian border, which includes names suggestive of his. At Priene *Σανδία* is named; at Myus near by there was a *Σάνδιος λόφος*. In the Milesian colony of Lampsacus Sandes is known as a personal name. In Lydia itself there is the personal name Sandanis, and its capital Sardes, and the coloured garments called *σάνδυκες* or *σανδόνες*. See Roscher, *Lexikon*, s.v. *Sandas*, cols. 326, 327, 330. The Troad and its neighbourhood is another such centre. Not only is there the name Sandes at Lampsacus, but the name Anchises was a famous one in Dardania, and this, as will be seen (p. 35), seems to be the same as a name from Isauria, and a Keftiu name and a Philistinian one also. That there were "Cilicians" in the Troad is well established by the passage in the *Iliad* (vi, ll. 397, 415), Andromache herself being one of them.

⁷ Roscher, *Lexikon*, s.v. *Sandas*, col. 329.

there in Hittite times, for some of the Boghaz-Keni tablets are found to contain incantations addressed to him. In these he occurs almost entirely in the passages in the Luvian language¹, which will be seen to have been that of Arzawa, which is Cilicia. He appears in a classical list of the Cilician gods, and yet again as founder of Tarsus². Strabo's legend of the founder of Anchiale and Tarsus is attached to a personage named by him Sardana-palus³, which probably contains a corruption of the god's name. A figure which has always been identified as his was so persistent on the coins of Tarsus as to suggest that it represented the founder⁴. Further, as a personal name the simple Σάνδων, Σάνδης itself is very common in Cilicia, while it enters into the composition of yet others from this country⁵. The appearance, then, of the name Sandas would be a remarkably good guide to the origin of its bearer, or the land to which an inscription containing it would refer. It would point very clearly to Cilicia, especially eastern Cilicia.

Now, along with Sandas himself there was another form of the god, who was even more limited in his range. This was Sandokos⁶. While Sandas founded Tarsus in eastern Cilicia, Sandokos was his other self who on arrival from Syria landed farther to the west, and founded the city of Kelenderis in western Cilicia, or Cilicia Tracheia as it is often called. The coins of this city bear the letters ΣΑ or ΣΑΝ clearly representing the name of the founder. Sandokos seems to have been entirely local to Kelenderis, and at present his worship does not seem to have spread at all outside its immediate neighbourhood. The little that is told of him is that he was the husband of Pharnake and father of Kinyras⁷, the priest-king of Paphos and Amathus in Cyprus. Kinyras we know reached Cyprus from Byblos on the Syrian coast⁸, so it may be that Sandokos himself is ultimately to be referred to that city also. The statement that he was "father" of Kinyras probably means that having established themselves at Kelenderis influences from that port began to radiate outward and affect Cyprus. Indeed, Tacitus tells us that the science and practice of haruspicy was actually brought to Paphos by a Cilician⁹. That there was a special connexion between Kelenderis and Cyprus in early times is probable for several reasons. In the first place there is the geographical fact that Cyprus masks the whole of this part of the Cilician coast. Secondly, under its modern name of Chelindreh, Kelenderis was still the port at which the Sultan's couriers from Constantinople used to embark for that island¹⁰. In the same way it was here that the traveller Leake himself, coming from Laranda (Karaman) in Lycaonia, reached the coast and took ship for Cyprus¹¹. This is the more remarkable since it might have seemed more natural to have followed the valley of the Calycadnus River to its mouth and to have embarked there.

Armed with this information about Sandas and Sandokos we are now in a position to follow up Dr. Hall's happy guess and to see whether the rest of the spell will divide into

¹ F. Hrozný, *Hethitische Könige* (in *Boghazköi-Studien*, Heft 5, 1920), 37, 56; E. Forrer, *Sitzungsber. der preuss. Ak. d. Wiss.*, 1919, 1040. For a translation of one of the spells see E. Forrer, *Zeitschr. d. morgenländischen Gesellschaft*, LXXVI (1922), 217.

² Roscher, s.v. *Sandas*, cols. 320, 323.

³ Strabo, C. 672.

⁴ G. F. Hill, *A Catalogue of the Greek Coins in the British Museum; Lycaonia, Isauria and Cilicia*, p. lxxxvi.

⁵ Roscher, s.v. *Sandas*, col. 324.

⁶ *Ibid.* and also Pauly-Wissowa, *Real-Encyclopädie*, s.v. *Sandon*, cols. 2265-6.

⁷ Roscher, *ibid.*

⁸ For a collection of references see Roscher, s.v. *Kinyras*, cols. 1189-91. Strabo, C. 755, says that there were Kinyras kings at Byblos.

⁹ Tacitus, *Hist.*, II, 3.

¹⁰ Beaufort, *Karamania*, 1818, 209.

¹¹ W. M. Leake, *Journal of a Tour in Asia Minor*, 1824, 118.

anything intelligible. On looking at it in this way, we at once see that, if the spell ends with the name of one Cilician god, it certainly begins with that of another. If the last is Tarku, the first is either Sandas or, perhaps more probably, Sandokos. Sandokos is the more probable, for the first letters are *šntk*, or, if any vocalization be allowed, perhaps *šntiks*. This must be an almost perfect reproduction of the Cilician word which gave the Greeks their form Sandokos. The doubt as to whether the name represented is Sandas or Sandokos is of course due to our ignorance as to how the following words are to be read. The *k* that follows the *šnt* may belong to this group and form a word *šntk*, Sandokos, or else it may belong to the next, when it would leave us with *šnt* or Sandas. Actually for our present purposes it makes very little difference which it is, for both Sandas and Sandokos are endemic in Cilicia. However, until we have more accurate information as to how the spell is to be read, it would seem reasonable to suppose that the *k* belongs to the *šnt*, and that the word should be read *šntk* = Sandokos. If, therefore, it be admitted that one of these two names appears in the Egyptian spell "in the speech of Keftiu," then in it we have a guide of exceptional value. While Tarku at the end of the spell points the way to Cilicia in general, Sandas at the beginning would also lead us to Cilicia in general and Tarsus in particular. But if, as is more probable at present, the name with which the spell begins is Sandokos, then we are led once more to Cilicia in general, though to another city. The centre of that god's worship is very accurately defined, for he belonged to one city, and to one city only, and that is Kelenderis.

This becomes of signal importance when taken with the facts about the personal names that will be considered in the following sections. With the exception of a single one which cannot at present be well matched there or anywhere else, these all point to Cilicia and its immediate neighbourhood as the centre whence they spread over the rest of the country. Not only do they point to Cilicia in general but more especially to Cilicia Tracheia, in which Kelenderis is situated.

It has already been pointed out that Sandas occurs on some of the tablets discovered at Boghaz Keui. What is even more important is the translator's statement that it is almost only in Luvian passages that he and Tarḫun (Tarku) are mentioned¹. Sandas and Tarḫun, therefore, are even at this comparatively early date peculiarly identified with Luia. And now more links in a chain that is extraordinarily complete are supplied by the facts—which are practically certain—that Luia was Arzawa or a part of it; and that, while Luia was eastern Cilicia, Arzawa was the southern coastland of Asia Minor including Cilicia, Lycaonia and Pisidia, and at one time was sufficiently extended even to cover Lycia². Geographically, then, Luia and Arzawa are the same as is Keftiu on my thesis. Moreover, the Hittite tablets show the Cilician gods Tarḫun and Sandas to have been Luvian ones, and if they have been correctly identified there, the Egyptian writing-tablet would show them to have been Keftiuian ones also. Hence all these details indicate that Keftiu was Cilicia, and perhaps the neighbouring coastland of southern Asia Minor.

Even these points do not exhaust the satisfaction offered by the identification of Sandas and Cilicia in the new Hittite tablets, for they supply yet a third and completing link. This is the fact that, besides its being almost only in Luvian passages that Sandas and Tarḫun are mentioned, the texts themselves in which these Luvian or Cilician passages

¹ Hrozný, *Hethitische Könige*, 56; Forrer, *Sitzungsber. der preuss. Ak. d. Wiss.*, 1919, 1040.

² Hrozný, *Über die Völker und Sprachen des alten Chatti-Landes* (in *Boghazköi-Studien*, Heft 5, 1920), 40. See further in Mayer and Garstang, *op. cit.*, s.v. *Arzawa* and *Luia*, where full references to the literature are given, and in still greater detail, Garstang, *Liverpool Annals*, x, 21 ff.

occur are almost entirely incantations¹. This ancient importance of Cilicia in the realm of mystery and magic finds at least one echo in the classical tradition that it was a Cilician who brought the art of divination to Paphos in Cyprus². Another is to be found in the closeness of the relationship which the Greeks discovered between a number of cities in eastern Cilicia and a famous seer of the Trojan War. This was Mopsus. His skill in his art was so great that he overcame in contest another seer, Calchas, who died of grief at his discomfiture³. Mopsus gave his name to Mopsucrene, founded Mopsuestia, and along with Amphilocheus, yet another famous soothsayer, was said to have founded Mallos. This is probably only a transference by the Greeks of the original story to a suitable personage out of their own sagas. For if Mallos be the *Mnnws* of the Egyptian monuments, as is probable, the city must have been in existence at least two hundred and fifty years before Mopsus could have arrived there after the fall of Troy⁴.

It must, then, surely be of the highest significance that, like the Luvian passages of the Hittite tablets, our Egyptian text "in the speech of Keftiu" is also an incantation. Furthermore this fact about the Egyptian incantation now becomes very strong evidence that the two names of Sandas or Sandokos and Tarku have been rightly identified in it. It is also a most remarkable fact that the very little that is known of the Luvian speech and the only scrap that is known of the Keftiu language show both of them to have been important in spells and incantations, and moreover in spells containing the names of these two gods who are characteristic both of spells and of Cilicia, whether called Luia or Keftiu. This chain of evidence is very remarkable and may be said to prove two things that are valuable for the present argument. These are: first that the Keftiu language was Luvian, and secondly that the land of Keftiu, which was Luia, was our very district of Cilicia with a possible extension to Lycaonia and Pisidia.

We must now approach the other hieratic writing-board, that containing instructions how "to make names of Keftiu," and look round the Levant for a district which produces a similar group of names. We soon find that no such group exists except in the great collection made by Dr. Sundwall of southern and western Asianic names bearing on the question of Lycian names⁵. He has brought them together from very many sources, but those that prove to be of interest for this article are found to come from Phrygia, Lydia, Caria, Lycia, Pamphylia, Pisidia, Isauria, Lycaonia and Cilicia. It is among these that seven out of our eight "names of Keftiu" are to be found, and even if the eighth cannot be really well matched like the others, yet names can be found that are fairly comparable to it, and which are helpful in another line of our research. This fact of the solidarity of the

¹ Forrer, *Die Inschriften und Sprachen des Hatti-Reiches in Zeitschr. d. Morgenländ. Gesellschaft*, LXXVI, 190, 216. Cf. Forrer, *Sitzungsber. der preuss. Ak. d. Wiss.*, 1919, 1030.

² Tacitus, *Hist.*, II, 3. He calls him Tamiras which rhymes with Kinyras the name of the king of Paphos. Probably we have here a more detailed version of the story that Sandokos was father of Kinyras.

³ Strabo, C, 675 and 641.

⁴ *Mnnws* occurs in a list of Amenophis II's (L., D. III, Pl. lxiii). Here it is put next to Keftiu, and the two captives surmounting the names resemble each other, and differ from all the rest except Libya, in the manner of their hair dressing. *Mnnws* (Mallos?) and Keftiu (Cilicia) thus seem to be connected as early as 1450 B.C. For the whole question of *Mnnws*=Mallos, see Max Müller, *Asien und Europa*, 344, 345.

⁵ With of course the exception of the names of Van and Philistia. But the examples provided by these countries are so few and unsupported by others, that by this very fact they prove themselves to be nothing but outliers belonging to the main focus.

group is very remarkable, but, besides that, most of them occur, not in a rare and isolated manner, but in considerable numbers, and moreover fortified by yet others of similar construction. As the names on the Egyptian writing-board are all personal, Peet quite rightly insists that names of persons alone should be studied and that they should all belong to one period. This is a counsel of perfection; yet we are actually able to comply with it in the following pages. We are able to find our names all in one period, although it is as late as Greek times. Admittedly that is a long time after 1500 B.C., which is about the date in the Eighteenth Dynasty¹ at which our hieratic list of names was made, but still we are at least able to bridge over the lapse of time with the Vannic and Philistine names. Similarly we are able to confine our study to personal names. Naturally, however, we shall not refuse to call on the supplementary evidence provided by tribal and place-names. This concentration of the enquiry proves to be of the utmost value to the search, for the personal names congregate round one centre in a most remarkable way. Not only is this observable in the classes of names themselves, but, wherever the class is big enough to supply such evidence, the numbers in each class are seen to be greater round one and the same centre. This is western Cilicia, or Cilicia Tracheia as it is sometimes called, and Isauria. From here they spread away to the east through eastern Cilicia up into the mountainous country of Mara'sh, Malâtia, and even Urartu on the shores of Lake Van. To the north of Cilicia Tracheia it is remarkable how they hug the slopes of Taurus; what gets beyond that is almost negligible. To the north-west there are one or two outliers in Pisidia, and similarly one in Lycia to the west. The compactness of the group is thus remarkable. It may be said that the Calycadnus River system is the centre of it, and just as this trends away to the east so does the group of names. Three things will be remarked about this district in which the "names of Keftiu" are to be found. In the first place it is Cilicia, which the archaeological evidence of my previous article showed to be the position of Keftiu; secondly, it also covers the area already marked out as the Arzawa and Luia of the Hittite texts, and these are countries which themselves show signs of being Keftiu; and thirdly, it includes the country of the Cilician gods Tarku and Sandas or Sandokos who seem to appear in the incantation "in the speech of Keftiu."

The names of Keftiu given on the writing-board are *išhr*, *Nsy*, *ikš* and *ikšt*, *idn*, *Purt*, *Rs*, and *Bndbr*; in discussing them we will take them in their order of significance.

1. *Bndbr*. This is the strangest of them all, and a collection of consonants so peculiar as this is not likely to be found in many parts of the world. When, therefore, it is possible to point to a number of place-names containing this element, all of which occur in one tract of land, and, as it might be said, up and down a single river, then indeed we have a very strong presumption that this is the home of the name. The country where they are recorded is Cilicia Tracheia and the river is the Calycadnus. Here are found names actually composed of the letters *ndbr* in exactly the order that they occur in the name on the writing-board. It is this district again that produces other names compounded with the letters *tbr*, and yet others with the not dissimilar groups of *ndrb* and *ndb*. In their Greek forms the *ndbr* names are *Πωνδβεππας* (M) and *Τακωνδβεππας* (M); the first occurs at the Corycian Cave² on the shore not very far east of the mouth of the Calycadnus River, and the second is recorded from Palaia Isaura³ in the mountains fringing the upper reaches of the

¹ *Essays in Aegean Archaeology*, 99.

² Heberdey and Wilhelm, *Reisen in Kilikien*, 76-77, ll. 69, 100 (in *Denkschriften der kais. Ak. d. Wiss. Phil.-hist. Classe*, Vienna, 1896).

³ Sterrett, *The Wolfe Expedition to Asia Minor*, No. 181 (Vol. III of the *Papers of the American School of Classical Studies at Athens*).

same river. These Greek transcriptions and vocalizations of the native names show identically the same consonants as does the Egyptian one of a much earlier date. The only variation is in the first part, the place of the Egyptian *B* being taken by *Ro* and *Tarku* in the two names of this class that happen to have come down to us from the homeland.

As if these two names were not sufficient of themselves, chance has been kind for once and has given us yet another pair of the same type including the group *tbr*, *Τβερρασητας* (M) and *Τβερρημωσις* (M), where the *n* is missing. They show that *tbr* is the essential part of this group of names and that we are here dealing with reproductions of the native *tbara*¹. Of this second pair of names the first comes from the Corycian Cave² like one of the others, and the second from the site now called Uzunja-Burdj, an hour's journey west of the famous city of Olba³, which lies in the hill country above Corycus on the one side and the Calycadnus River on the other. Olba is the city where priest-kings ruled who were descended from Teucer and, indeed, often bore that name⁴. Now, the name Teucer is commonly thought to be the same as Zakkal, the name of one of those tribes who accompanied the Philistines on their raid into Egypt and may perhaps have left a relic of themselves in the name of the Philistine city of Ziklag in Palestine. This is important seeing how closely interwoven the Philistines are with the question of Keftiu⁵.

As a background for these names and to show that this combination of consonants was well known in Cilicia Tracheia we may quote two more names both of which begin with the same syllable *Pov-* that we have already had. The first is *Πωνδερβεμης* (M), where again we have the consonants *ndbr* but with the *b* and the *r* transposed, coming as they do from the native *trbbe*⁶. Getting further away from the original but still beginning with *Pov-* we get the name *Πωνδβηνς* (M), where the *n* is once more followed by the *d* and the *b*, but without the *r*. This might even perhaps prove to have been a variety of *Πωνδβεππας*, for it represented the native word *tb(a)iya*⁷, where the *r* is exchanged for a *y*. The softening away of an *r* is a not uncommon occurrence in the history of language. Both these come from the Corycian Cave⁸.

These names are undoubtedly ancient in this district, for a name of this sort is known elsewhere to go back to about the year 900 B.C. This is Lutipris, the name of the father of the man who founded the citadel on the shores of Lake Van. It will be noticed that the name includes the same group of consonants, *tpr*, as *Bndbr* and *Πωνδβεππας*, and like them prefixes a monosyllable to these consonants. Lutipris is not isolated in Van, for later on another of the kings bore the name Uedipris which is of the same construction. The Vannic kings and their names will be discussed in detail further on in this article⁹. It will there be seen that distant though they may appear at first sight they have important contributions to make to our knowledge of Keftiu. Indeed there is much evidence to show that this dynasty originated in some such country as the hinterland to the north-west of Cilicia Tracheia.

There can be no doubt, then, that *Bndbr* belongs to a type of name that was well established and widely spread in Cilicia Tracheia, at least in classical times. Indeed it can be traced back to within some six hundred years of the date of its appearance in Egypt as

¹ Sundwall, 84, 198, 199.

² Heberdey and Wilhelm, *Reisen*, 76, 77, II. 68, 102.

³ *Op. cit.*, 88.

⁴ Strabo, C. 672.

⁵ See pp. 35, 37, and still more, especially concerning the costume, will be found in my companion article in *J. H. S.*, 1931.

⁶ Sundwall, 84.

⁷ *Ibid.*

⁸ Heberdey and Wilhelm, *Reisen*, 76, II. 50, 83.

⁹ See pp. 38 ff.

a "name of Keftiu" and still at that date, though in a very different part of the world, is not without relationship with the neighbourhood of Cilicia Tracheia.

2. *Nsy*. In this name we have an element which is well known to every schoolboy in the name *Συννεσις*, the king of Cilicia who came out to meet Cyrus the Younger and Xenophon and to conduct them through his dominions. As a matter of fact *Συννεσις* was more than a mere personal name, for it was actually the royal title of the kings of Cilicia, a number of them being known to have borne it. The Egyptian *Nsy*, which corresponds to the native *nezi*¹, from which was derived the Greek *νεσις*, is, therefore, very peculiarly identified with Cilicia. Not only is it used as an element in the composition of longer names, but the simple name *Νησις* (M) itself is found. It has been reported from above Antiocheia on the coast of Cilicia Tracheia between Anemurium and Selinus². In the slightly different form of *Νησιος* (M) it crossed the mountains and penetrated Lycaonia as far as Iconium³, and as *Νεισιων* (M?) it is found nearer home at Kassaba⁴ at the foot of the mountains dividing Lycaonia from Cilicia.

As an element in the formation of Cilician names it occurs in others than *Συννεσις*. From the Corycian Cave the name *Πωνησις* (M) is recorded⁵. In the upper reaches of the Calycadnus River we know of two names containing it; *Οναγδαρησις* (M) at Artanada⁶, and *Απινησις* (M) from Eshenler Baghlari on the ridge of the mountains which overlook this river⁷. As an element in compound names *Nsy* is by no means confined to Cilicia but is far flung, occurring as it does in Pisidia and Lycia on the west and the neighbourhood of Malâtia on the east. It thus stretches even farther east than *Rs* and *Pnrt*, which will be studied in sections 3 and 6. In the west we get the two names *Μολανεισα* (F) and *Μολανεισια* (F) both from Termessus in Pisidia⁸, and *Πευναςος* (M) from Limyris in Lycia⁹. Away to the east at Malâtia out beyond the headwaters of the river Pyramus there reigned a prince with the Cilician-sounding name of Tarkhunazi¹⁰. This, dating as it does from the year 717 B.C., carries the form a long way back from the usual classical times towards the sixteenth century B.C. when our scribe wrote his list of "names of Keftiu" on the Egyptian board. This name becomes important for it fits on to a quantity of evidence supplied by Tarkhunazi's neighbours still farther to the east, the Vannic kings of Urartu. Two of them have already been noted, but they and their names will be discussed in detail later¹¹. It will then be seen that the evidence they provide points towards Pisidia as their homeland. The name *Nsy*, then, was very well known both in Cilicia itself and in its immediate neighbourhood as well as farther afield. It was moreover identified in an exceptional manner with Cilicia in that it formed part of the title of the Cilician kings themselves.

3. *Rs*. This again is a name which is well known in a variety of combinations in the same area of Cilicia Tracheia, though it penetrates much farther over the mountains into the interior than the others. On the east, however, it does not go so far afield as did *Nsy* at Malâtia, though in the name Rhosus it is to be found at the extreme eastern end of

¹ Sundwall, 168, 169.

² Heberdey and Wilhelm, *Reisen*, 151.

³ Ramsay, in *Bulletin de correspondance hellénique*, VII, 315.

⁴ Sterrett, *op. cit.*, no. 17.

⁵ Heberdey and Wilhelm, *op. cit.*, 76, l. 79.

⁶ Sterrett, *op. cit.*, no. 112.

⁷ Ramsay, *Studies in the Roman Eastern Provinces*, 170, no. 54.

⁸ *C.I.G.*, III, no. 4366, l. Lanckoroński, *Städte Pamphyliens und Pisidiens*, II, 207, no. 87.

⁹ *C.I.G.*, III, add. 4315, b (not n as Sundwall gives). Also the name is spelt with a π as here, not with Sundwall's τ.

¹⁰ H. Winckler, *Die Keilschrifttexte Sargons*, 31, l. 178; 33, l. 185; 113, l. 78.

¹¹ See p. 38.

Plain Cilicia. This is a corner where a number of names of the *Pnrt* group are found congregated together¹.

The native Cilician word of which *rs* is the Egyptian rendering is clearly *hru-(a)za*². As the simple name it does not seem to have been recorded hitherto from Cilicia itself, but from Lycaonia there come the forms *Πουσων* (M) and *Πωσις* (F). They have been copied at two sites a little to the west of Laodicea Combusta³. Though the simple name may not yet have been found in Cilicia Tracheia itself, yet this country provides a profusion of names compounded with this element. They come mostly from the coast where are situated the Corycian Cave and the city of Kanytelideis. From inland there comes another, which probably originated from Zenonopolis. The first name is *Πωσγητης* (M), which occurs twice, once in the Corycian Cave itself and once in another cave in the neighbourhood⁴. From the Corycian Cave again come a pair of names *Πωζαρμας* (M)⁵ and *Ἀρμαρωνζας* (M)⁶, the latter of which is found once more at the neighbouring city of Kanytelideis⁷. Yet again from the Corycian Cave come the pair *Πωζρυμερις* (M) and *Πωνζρυμερις* (M)⁸. It might have been supposed that the introduction of the *ν* altered the word, but in his study of the names Sundwall considers them to be variations of the one⁹. In *Πουσουμβλαδεωτης* we have the element *rs* once more. This rather terrific name was that of the father of the Emperor Zeno the Isaurian, and is an ethnic formed from a place-name which would be *Πουσουμβλαδα*. This again can be resolved into its component parts of *Πουσ-* and *-ουμβλαδα*, which latter is of the same class of name as *Amblada*, a city not far over the mountains from Cilicia Tracheia. Unfortunately the situation of the city *Πουσουμβλαδα* is not yet known, but it can be placed with reasonable certainty, for there is a well known city that was called Zenonopolis. Seeing that this was called after the emperor Zeno, it is not an unreasonable guess that its original native name was as above¹⁰. This was one of the cities of the Decapolis Isaurica, and was situated on the river Ermenek Su, the main tributary of the Calycadnus. So in this case we should get the element *Πουσ* right in the heart of Cilicia Tracheia. Sundwall quotes a name *Πωιζις* (M) as coming from the neighbouring Pisidia¹¹, but as a protracted search has not enabled me to recognize the reference given, I am not able to insert it in my map.

As a place-name the syllable turns up again in the name *Πωσος*. This is the name of the last city in eastern Cilicia towards Syria, on the coast, only just within the Amanus Mountains. It is, thus, quite close to the Pinarus River on the one hand and on the other to the city of Pinara and the people called the Pinaritae. These are names of the same type as *Pnrt*, which like *Rs* figures as Keftiuan on the Egyptian writing-board of 1500 B.C. Like the *Bndbr* family *Rs* is also represented at Van, where three kings are called *Rusas*¹².

In the case of *Rs*, then, it is clear that one more of the Egyptian scribe's "names of Keftiu" was well known in the Cilicia of classical days and was especially at home in that part called Cilicia Tracheia. The kings of Van carry the name back as far as the middle of the eighth century B.C.

¹ See p. 36.

² Sundwall, 84.

³ Khadyr Khan (Ramsay, *Athenische Mitth.*, XIII, 267), and Kunderaz (Hogarth, *J.H.S.*, XI, 165, no. 26).

⁴ Heberdey and Wilhelm, *Reisen*, 70, 76.

⁵ *Op. cit.*, 76.

⁶ *Op. cit.*, 77, I. 141.

⁷ *Op. cit.*, 52, no. 119.

⁸ *Op. cit.*, 76, II. 39, 51.

⁹ Sundwall, 270. The whole question of nasalization is studied here and on the previous page.

¹⁰ Ramsay, *Historical Geography of Asia Minor*, 365 note, 366, 370.

¹¹ Sundwall, 84, where he quotes as his reference, Ditt., *O.I.G.*, 86.

¹² See p. 38.

4. *ikš*, *ikšt*. The latter is a name ending in *t*, and therefore to an Egyptian might appear as a feminine word. It is a curious coincidence, though perhaps no more, that the only name from the Cilician area that will fit this at all is actually a feminine one. This is [A]κκισις (F), which has been copied at Siristat¹, a site both near Isaura and in the mountains round about the headwaters of the Calycadnus River. There was a masculine form of *ikšt* which the Egyptian scribe gives as *ikš*, but this has not yet been found in its homeland. It has, however, been recognized, and no doubt correctly, in the names of two kings of the Philistines². One was Ikausu, king of Ekron in the time of Esarhaddon and Assurbanipal³, and the other was Achish, king of Gath and Ziklag in David's time⁴. Ikausu would, therefore, have been living between 680 and 626 B.C., while the date of Achish would have been some three hundred and fifty years earlier, round about 1000 B.C. Both these are far earlier than the classical times from which we have to collect our names in Cilicia and Isauria, and Achish takes us back even a little earlier than the Vannic kings and to a date not so very far removed from that of the Egyptian list of "names of Keftiu." Now, in my original article I have already brought a great deal of evidence⁵, and in the companion article to the present one I have brought a great deal more, as to the homeland whence the Philistines and the Sea Raiders came⁶. I have shown that they came not so much from Crete, as has often been supposed, but from somewhere on the southern or south-western coasts of Asia Minor. Achish himself adds a little more to this probability. He ruled over Ziklag⁷, a city whose name probably contains that of the Zakkal, one of the tribes who raided Egypt with the Philistines. The Zakkal are probably the Teukroi, who are peculiarly identified with Cilicia Tracheia⁸, where so many other Keftiuan names are to be found. It is in the hinterland of this district that [A]κκισις, the feminine form of *ikš*, Achish, Ikausu, turns up near Isaura⁹. It is thus possible to identify the Keftiuan *ikšt* with [A]κκισις with a very considerable degree of certainty, and to anticipate that its masculine counterpart, *ikš*, will be found there also in due time.

We have already seen how the masculine form *ikš*, Achish, refers us back to Cilicia Tracheia. There is, however, yet another and rather astonishing way in which once more it brings us near to "Cilicians," and on this occasion at a date earlier than any of those we have yet met. It is through the form which the Septuagint gives to the name in transliterating it into Greek. The form is Ἀγχούρς or Ἀκχίς. This is of course reminiscent of Ἀγχίσις, the name borne by the father of Aeneas, who was ruling in the Troad at the

¹ Sterrett, *op. cit.*, no. 165.

² Max Müller, *Zeitschr. für Assyriologie*, 1894, 394, 395, and *Studien zur vorderasiatischen Geschichte*, 9. (Heft 1 of the *Mitth. der vorderasiatischen Gesellsch.*, 1900.)

³ E. Schrader, *Keilinschriftliche Bibliothek*, II, 149, 241.

⁴ 1 Samuel, chs. xxvii ff.

⁵ See *J.H.S.*, 1931.

⁶ Strabo, C. 672, and *J.H.S.*, 1931.

⁷ *Liverpool Annals*, VI, 64 note 4, and 71-73.

⁸ 1 Samuel xxvii, 6.

⁹ The name Shekelesh, which is that of another tribe who accompanied the Philistines to Egypt, is often compared to that of Sagalassus, a city variously ascribed to Pisidia or Isauria. Although I may not yet have definitely found the name Philistine, Pelishti, Pelethi, *Pršti* or *Plšti* in the country under consideration, yet it might easily occur there. There is actually such a form as *Prutte* (Sundwall, 187) which contains all the necessary consonants, and looks suspiciously like the original we are in search of. Moreover, on finding that the analogous form *Crustti* also occurs (Sundwall, 116) one thinks involuntarily of the famous pair of the O.T., the Pelethim and Cherethim. Or again the word "Philistine" might quite easily be built up of the components *pole-* and *atte-* or *utta-*, which are quite common in Asianic names. (Sundwall, 55, 56, 177, 178, 236.)

time of the Trojan War. It has already been pointed out¹ that there were not only "Cilicians" dwelling in the Troad at that time², but that the Cilician "Sandes" was used as a personal name at Lampsacus in the same part of the world. Hence through Achish we seem to get a connexion with "Cilicians" as early as 1200 B.C., and this is only three hundred years after the Egyptian scribe had included the names *ikš*, *ikšt* among his "names of Keftiu."

The native Asianic word which the Egyptian scribe reproduced by *ikš*, *ikšt* is *aki-(a)za*³.

5. *idn*, *idm*, or possibly *idt*. In view of what follows there can be little doubt but that *idn* is the correct reading. There seems to be nothing in the lists of names of southern Asia Minor that at all corresponds to either the second or third possible readings, but *idn* finds plenty of parallels. At Termessus in Pisidia a man's name *Οτανης* (M) has been twice recorded⁴. Another variety of it *Οτανειος* (M) also comes from this same city⁵. Coming farther east we have the place-name *Οταναδαι* at Uzunja-Burdj near Olba in Cilicia Tracheia⁶. Farther east again we have the city Adana in eastern Cilicia and its eponymous founder Adanos⁷. This city takes us back into ancient times, for not only was Adanos, its founder, said to have been the son of Uranos and Ge (Heaven and Earth) and therefore autochthonous, but under the form Adania it is mentioned in the Hittite texts. Here it appears along with Arzawa, which is the southern coastland of Asia Minor from Lycia to Cilicia⁸. The native word from which these names are derived is *utāna*⁹. *idn*, which was a "name of Keftiu," is, therefore, very well matched by a personal name in Pisidia and by a mythological one in eastern Cilicia, while place-names of the same form are to be found not only in eastern Cilicia but also in Cilicia Tracheia.

6. *Pnrt*. Like *Nsy*, *Pnrt* stretches over the border of the Pisidian-Lycaonian-Cilician area. Moreover, it is very common as a tribal and geographical name near the city of Rhosus on the Gulf of Issus, which has just been cited in connexion with another "name of Keftiu," *Rs*. Pliny speaks of a people who lived between Pagrae and Seleucia and were called the Pinaritae¹⁰, a name which is exactly reproduced by the Egyptian *Pnrt*. It was no doubt the capital city of these people which Ptolemy names as Pinara, and which along with Pagrae and the Syrian Gates are the only names known to him in the Syrian district of Pieria¹¹. Pieria is the mountainous country to the north of Seleucia and Antioch just on the outer side of the mountains which separate Syria from Cilicia. While it was thus beyond the Cilician border, it surrounded the exit from the mountain pass which is famous in history as the Syrian Gates. As this was the only road out from Cilicia into Syria, it seems probable that the Pinaritae were immigrants into Pieria and had pushed through from Cilicia. Near the inner end of the pass, and so at the extreme end of Cilicia itself, there was also the well-known river Pinarus at Issus¹². Hence even if we have not yet been able to find a personal name here, the names Pinarus, Pinara, Pinaritae are very well established at the eastern end of Cilicia and just over the border. However, Pinara as a

¹ See p. 27, note 6.

² *Iliad*, vi, ll. 397, 415.

³ Sundwall, 47.

⁴ *C. I. G.*, III, p. 1165, Addenda, no. 4366, i, 2; Lanckoroński, *op. cit.*, II, 201, no. 49.

⁵ *C. I. G.*, III, no. 4366 b, not f, as Sundwall gives.

⁶ Heberdey and Wilhelm, *Reisen*, 89, no. 168.

⁷ Roscher, *Lexikon*, col. 66.

⁸ Mayer and Garstang, *op. cit.*, 3, 7 f.

⁹ Sundwall, 236.

¹⁰ Pliny, *N. H.*, v, ch. 23 (19), 82, where the text followed by Teubner gives *Penelenitas*, but see p. ix for the reading *Pinaritas*.

¹¹ C. Müller, *Cl. Ptolemæi Geographia*, v, ch. 14, § 9.

¹² Strabo, C. 676.

place-name is not only confined to this corner of Cilicia, but another city of this name is listed by Pliny between Cibyra and Selinus¹, which, while still within Cilicia, would be situated at the other end of the territory. As in the east so in the west the name gets beyond the frontier of our district, for we find in Lycia the city of Pinara, and the personal name Pinalos, which was that of its founder².

From this we may turn to the only personal name that might suit the Egyptian *Pnrt*. This reads Πινάρρα in its Greek form and is the name of a woman³. The fact that this is feminine might have induced the Egyptian scribe to transpose the *t* and the *r* and so more or less unconsciously to approximate the name to something that might appeal to him as feminine. If so, he would have done what he pretty clearly did with the name discussed in the last section but one. There he seems to have given a *t* to *škš* and to have made it represent a feminine name⁴. The name Πινάρρα was found in the environs of Isaura⁵, that is to say within two miles of the site at which was found the name Ταρκυνδβερρας of an earlier section. At Isaura the name Πινάρρα was thoroughly at home, for it was right in the centre of the country over which we have seen the comparable names Pinarus, Pinalos, Pinara and Pinaritae to have been spread.

In the Egyptian word *Pnrt* it is clear that we have to do with a name that contains the native Asianic word *pina*⁶. *Pnrt*, therefore, takes its place along with the others as an Egyptian rendering of the sixteenth century B.C. of a class of name which in classical times was very common at the eastern end of Cilicia and beyond it, and was to be found also at the western end of Cilicia and beyond it. Moreover what is perhaps a related form was used as a personal name in Isauria.

7. *šhr*. This name has been left to the last, seeing that it is the only one that is unsatisfactory. Among the names at our disposal the only ones that would be at all likely to represent it seem to be those mentioned below. The difficulty, however, is that the place of the Egyptian *h* is taken by *k*, a change that perhaps seems hardly likely. But still, seeing that they are the nearest that can be found and that they belong to the fringes of our district, they are included for what they are worth. Sundwall's list only contains one of these personal names, and that is Ισκαλος (M), which comes from Karamanlū in Pisidia⁷. There is also the name Askara, that of a place somewhere in Pisidia, though its exact situation is unknown⁸. From Gundani in Pisidia-Isauria there comes an ethnic name Ασκαρηνός⁹.

Although these names are not very good parallels to the Egyptian *šhr*, they do suggest a new Philistine comparison, and this is of interest to us. As we have already encountered connexions with the Philistines in this part of the world, a comparison of these names with that of Ashkelon, the famous city of the Philistines, will not be out of place. At first sight the presence of the *k* in the Asianic names might seem to present a difficulty, for the Hebrew writes Ashkelon with a *q*. When, however, we consider this name through the same medium as the Asianic this difficulty disappears. The Asianic names come to us in a Graecized form, and so they should be compared not with the Hebrew,

¹ Pliny, *N.H.*, v, ch. 27 (22). The list, however, does not run straight along but dodges about.

² Roscher, s.v. *Pinalos*.

³ Sterrett, *op. cit.*, no. 207.

⁴ It is, however, to be observed that he does not use the same sign for these two *t*'s.

⁵ Actually at a site called Hadjilar. Sterrett, *op. cit.*, no. 207.

⁶ Sundwall, 180.

⁷ Sterrett, *An Epigraphical Journey in Asia Minor*, 45. The position of Karamanlū may be deduced from the particulars given by Collignon in *Bulletin de correspondance hellénique*, 1878, 53.

⁸ Ramsay, *op. cit.*, 412.

⁹ Sterrett, *op. cit.*, no. 366, ll. 30, 60.

but with the Greek form of Ashkelon. This is Ασκαλων. Here, then, the Hebrew *q* has been transformed into the Greek *k*, which is the same as is used in the Greek rendering of the names in Pisidia and Isauria, and so makes them very comparable to the name of the Philistine city.

So far all our names have been found in the one tract of country, Cilicia and the neighbouring mountain area of Isauria, Lycaonia and Pisidia. There is, however, another land where several of them can be matched, and the names to be found here clearly belong to the same family. This is in the kingdom of Urartu, which flourished in Armenia round the shores of Lake Van during the ninth, eighth and seventh centuries B.C.¹ Here we find one of the kings called Lutipris², and another Uedipris. Uedipris took the name of Rusas³, a name also borne by two others of his line⁴.

In the two first of these, Lutipris and Uedipris, we have the consonants *dpr* or *tp* which represent the *δβρ* of *Πωνδβερρας* in Cilicia and the *dbr* of the Keftiuan *Bndbr* in Egypt. As in these, the part of the Vannic names composed of these consonants is preceded by a single syllable, so that not only is the main root the same as in the Cilician and Egyptian examples, but also the build of the word itself. In *Rusas*, the third name, we clearly have one more of the names in *Πους*, *Πως*, which we have already found in the simple forms *Πουσαν*, *Πωσις* in Lycaonia and *Rs* in the Keftiuan names from Egypt. These Vannic names are considerably earlier than the specimens we have been able to collect in the homeland of Cilicia and its neighbourhood. Uedipris-Rusas was the contemporary of Sargon of Assyria, who writes his name *Ursa*. He committed suicide by falling on his own iron sword in 714 B.C., heartbroken at Assyrian atrocities culminating in the sack and ruin of his important city of *Musasir*⁵. Lutipris is considerably earlier than this, for he was the father of Sarduris I, the builder of the citadel and founder of the kingdom of Van⁶. As Sarduris I was fighting with Shalmaneser III in 831 B.C., the name of Lutipris is carried back to about the year 900 B.C. Yet even at this comparatively early date it does not stand alone, for we have already had another of the Keftiuan names in Achish, the Philistine king of Gath and Ziklag in David's time, a hundred years or more before this. Lutipris, then, is the second name that has been found to be Keftiuan in form, to occur only five or six hundred years after the writing of the list in Egypt, and also to be Cilician in form of the classical period. Achish and Lutipris, therefore, at about 1000 B.C. provide a link in time between the early Eighteenth Dynasty in Egypt at one end and the Graeco-Roman period in Cilicia at the other. Uedipris at about 733 B.C. continues the chain over the centuries. His other name was Rusas, and this is one of the "names of Keftiu." Rusas supplies several more links in the chain of time, for three kings of this name are known. Rusas I came to the throne in 733 B.C., Rusas II in about 680 B.C., and Rusas III in 605 B.C.⁷

We may conclude, then, that the Vannic names Lutipris, Uedipris, and Rusas are not only Keftiuan in construction but also Cilician. It is satisfactory, therefore, that there is

¹ The third Rusas king succeeded to the throne in 605 B.C., and Urartu came to an end in 585 B.C., see the Synchronistic List of Kings, no. v, at the end of the *Cambridge Ancient History*, III.

² Sayce, *The Cambridge Ancient History*, III, 173.

³ *Op. cit.*, 177.

⁴ *Op. cit.*, 182 and the Synchronistic List of Kings, no. v at the end of the volume.

⁵ Winckler, *Die Keilschrifttexte Sargons*, 113, ll. 76, 77, and Sayce, *Cambridge Ancient History*, III, 181.

⁶ Sayce, *op. cit.*, III, 173.

⁷ *C.A.H.*, III, Synchronistic List of Kings, no. v at the end of the book.

yet another Vannic name which has not yet been discussed which supports the belief that this group is Cilician. Unfortunately we cannot claim it as "Keftiuan," for it does not happen to occur among the eight "names of Keftiu" on the Egyptian writing-board. This name is Sarduris, and it was borne by no fewer than four kings of Van¹. It is constructed with the syllable *Sard-*, which occurs again in Sardes, Sardanapalus and other names. Now, there is reason to believe that *Sard-* is only a variety of the syllable *Sand-* which is to be found in the name of the Cilician god Sandas², and so this common Vannic name would be very like that of the Cilician king Sanduarri³.

But the reader will have been thinking that it is a far cry from Lycaonia-Isauria-Cilicia to Lake Van. So it is. But the Keftiuans were far travellers. In Tuthmosis III's reign they had sent embassies as far as Egypt⁴, and by the Nineteenth Dynasty, when the great migrations were beginning, a man called "The Keftiuan" was actually living in Egypt⁵. To such travellers Van would not have been too distant, or the road thither too difficult. Once the Anti-Taurus has been negotiated, the valley of the Tokhma-Su leads away due east past Malâtia. On leaving this river the traveller finds before him the Murad-Su flowing in exactly the opposite direction, and this valley carries him along on the same line of march until at last he debouches on the great plain of Mush on the western side of Lake Van itself. In fact the emperor Romanus used this very route in his campaign of A.D. 1069 when he marched on Akhlat on Lake Van⁶. In any case, after having established themselves, these kings of Van kept up friendly relations with the far west. The king of Iconium called Rusas of Urartu to his aid against the Assyrians, when a battle was fought in 716 or 715 B.C. on the Calycadnus River⁷. These two kings formed the backbone of a confederacy against the Assyrians which lasted for some years⁸. Moreover, we have definite evidence that the Vannic empire did stretch a long way back to the west along this very line. We have records of the conquest of Malâtia⁹, and one of the kings set up his inscription at Palu on the Murad-Su¹⁰. Yet again, it was to the west, up the valley of the Tokhma-Su, that one of Van's allies fled from before the Assyrians. This was Tarkhunazi, who was captured in his fortress of Tuglarimmu at or near the modern Gürün¹¹. Hence there is no difficulty in supposing that the people of Van did come from the far west, or, to put it in other words, that the Keftiuans did travel as far east as Van and settle there.

In fact even in our present state of almost unrelieved ignorance of these countries there is an amount of evidence that is truly surprising to show that the rulers at Van had come from the far west, and from some such area as that in which their names find such numerous relations. As long ago as 1907 Lehmann Haupt had shown that there were insurmountable difficulties in the way of thinking that they had reached Van either from

¹ Sayce, in *C.A.H.*, III, 173-182.

² Cf. Roscher, s.v. *Sandus*, cols. 327, 328.

³ He was king of Kundu and Sizu in 678 B.C. Kundu is the country round the Gulf of Issus, and Sizu is the modern Sis in Cilicia to the north-east of Tarsus and Adana. *C.A.H.*, III, 83.

⁴ See the frescoes of Reklmireš, Menkheperrešsenb and Amenemheb.

⁵ Max Müller, *O.L.Z.*, II, col. 38, and Wainwright, *Liverpool Annals*, VI, 82, no. 18.

⁶ Anderson in *J.H.S.*, XVII, 38. On p. 26 he says that in general the western stretch of this road formed the great and direct line of communication between the east and west.

⁷ Olmstead, *Western Asia in the Days of Sargon of Assyria*, 88.

⁸ *Op. cit.*, 90 ff. Cf. *C.A.H.*, III, 55.

⁹ Sayce, in *C.A.H.*, III, 174, 176.

¹⁰ *Op. cit.*, III, 174.

¹¹ Olmstead, *op. cit.*, 92, and note 40.

the east or from the north¹. At the same time he also showed that many of the characteristics of their civilization found counterparts in western Asia Minor and the Aegean, and even at Mycenae². The pottery is burnished either red or black and agrees best with Körte's finds at Gordion in Phrygia³. Lehmann Haupt sums up the situation: we see the oldest non-Indo-European population of western Asia Minor engaged in a movement directed towards the east. This was taking place certainly in the eleventh and probably already at the beginning of the thirteenth century B.C.⁴ With this introduction taken from Lehmann Haupt we may note that the relics of the Vannic civilization include a pot decorated in a fashion that is not without some sort of relationship to Philistine work⁵. On its shoulder is a series of birds between horizontal stripes, and painted in a dark red brown with a violet tinge. Pots with a similar design in the same position and in much the same colour are well known from Philistine sites. Naturally there are differences; the Philistine birds are outlined in black and the band of decoration is divided into panels, neither of which details is to be seen on the Vannic pot; and again the Vannic stripes have a fringe of little dabs of colour which is lacking in the Philistine ware. Though as a rule the Philistine birds are in a very distinctive attitude which is not that of the Vannic birds, yet some do occur which are rather more like them⁶. But these are only differences of detail. The important facts to be noted are that the resemblances are generic, being those of position and paint used. To them may be added a third; that the birds all have long necks and also prominent breasts which droop in a curious manner. Myres has shown⁷ that this use of violet or purple paint spreads out widely from a centre in Cappadocia. This pot therefore forms yet one more connexion between Van and the West, and adds its weight to the arguments already adduced for seeing in the Vannic invaders yet another part of the great "Philistine" migration.

In view of the relationship thus made probable between the Philistines and the Vannic kings, it is not surprising to find names that can be allotted to each of them grouped together in a list of a much earlier date—our Egyptian writing-board of about 1500 B.C.⁸ Among these "names of Keftiu" we have found on the one hand a pair that probably represent the Philistine Achish and the feminine counterpart of it. On the other hand we have here found one name that is parallel in construction to the Vannic Lutipris and Uedipris, another that is identical with the Vannic Rusas, and yet another that enters into the formation of Tarkhunazi, the name of one of the neighbours and allies of the Vannic kings. The only possible conclusion to be drawn from this is that both the Philistines and the people of Van had migrated from one and the same land, where they had been living at an earlier period of their history. Now it was during this earlier period that the Egyptian list was written, and fortunately it supplies the name of this land that was common to both of them. It calls it Keftiu.

Where was this land of Keftiu? Lehmann Haupt⁹ indicates western Asia Minor, drawing archaeological parallels from Phrygia, Caria, and Lycia, and these betoken a culture area

¹ *Materialien zur älteren Geschichte Armeniens und Mesopotamiens*, 67, 123 (*Abhandl. d. kgl. Gesellsch. d. Wiss. zu Göttingen*, 1907).

² *Op. cit.*, 68, 69, 120 ff.

³ *Op. cit.*, 119, 120.

⁴ *Op. cit.*, 124.

⁵ *Op. cit.*, Pl. viii, fig. 1, and p. 116.

⁶ Bliss, *A Mound of Many Cities*, 62, fig. 106. For the more usual bird decoration of the Philistinian pottery see Macalister, *The Excavation of Gezer*, III, Pl. clxiii, figs. 1, 3, 7; Pl. clxv, figs. 9, 11; Pl. clxvi, fig. 6; Pl. clxviii, figs. 8, 9.

⁷ *Journ. Anthropol. Inst.*, xxxiii, especially 390-394.

⁸ See Peet's remarks in *Essays in Aegean Archaeology*, 99.

⁹ *Op. cit.*, 121 ff.

that had extensions to Crete and Mycenae. As already stated, the best parallels to the Vannic pottery, which was burnished, are to be found in one of the very few places that have been excavated in Asia Minor except on the western coast, *i.e.*, at Gordion in Phrygia. I have myself pointed out that the Philistinian panoply, dress and methods of fighting as shown on the Egyptian monuments were not Cretan but Asianic, and the parallels I was able to draw came from Ionia, Caria and Lycia¹, for at present we know nothing of such things in the lands of Pisidia, Lycaonia, Isauria and Cilicia. I also pointed to indications that the land of Caphtor, whence the Philistines came, was not Crete, as has been too easily supposed, but was to be found somewhere in Asia Minor². Mr. Woolley has recently carried the subject much further. He shows that the "sub-Mycenaean" civilization which flowed out over the Levant at the time of the great migrations is widely spread over south-western Asia Minor, and as far inland as Phrygia, Galatia and Cappadocia. In Pisidia the well-known pottery of this class, often described as "red Cypriote" ware of the Early Iron Age and often decorated with concentric circles, was so common as to be the most usual sort found in the old mounds³. While at present there is no indication of its precise date in Pisidia, in Cappadocia at any rate this pottery is early, the example we have of it being hand-made. In the finds, then, in these countries we undoubtedly have the precursor of the Iron Age pottery known throughout the Levant after the great migrations⁴.

The other characteristic feature of the thirteenth century migrations was the introduction of iron as the usual metal for tools and weapons. Metallurgy, especially the winning and preparation of iron, also characterized the civilization which the Vannic kings brought with them⁵. In this connexion there are three facts which are no doubt significant. They are: first that it was over the western border of Cilicia in Pisidia that the city was situated which was surnamed ἡ σιδηρᾶ⁶; secondly that it was to Eetion king of the "Cilicians" in the Troad that the famous lump of "self-cast" iron had belonged⁷; and thirdly, that it was at the eastern extremity of Cilicia, in Cataonia, that we have the famous smiths of Tubal. These are the people who were described in the old Testament as Tubal-Cain "an instructor of every artificer in brass and iron⁸," and from whom no doubt Tarsus (Tarshish) got its iron for export to Tyre⁹. Unfortunately it is not yet certain whether Cataonia be the same land as the Kizzuwadna¹⁰ which was already famous for its iron industry in Hittite times. So, through the iron we once again get a suggestion that the peoples involved in the great migrations are to be referred to southern or south-western Asia Minor in general, and on this occasion probably to Pisidia in particular. Of these peoples one was clearly the tribe which invaded Van, and they perhaps left Tubal-

¹ *Liverpool Annals*, vi, 64, note 4.

² *Op. cit.*, 71, 72. See also *J. H. S.*, 1931.

³ *E. S. A.*, xvi, 100.

⁴ *Liverpool Annals*, ix, 52, 53, where once more the inference is drawn that it was from this part of the world that the great migrations originated.

⁵ Lehmann Haupt, *op. cit.*, 124.

⁶ W. Smith, *Dictionary of Greek and Roman Geography*, ii, s.v. *Seleucia*, 954; Ramsay, *op. cit.*, 406.

⁷ *Iliad*, xxiii, 826, 827. For Cilicians see vi, 396, 397, 415, 416.

⁸ Genesis iv, 22. Garstang reports that there are important iron mines in the neighbourhood of Sis *The Hittite Empire*, 194, note 3.

⁹ Ezekiel xxvii, 12.

¹⁰ *Journal*, viii, 45 ff.; xi, 104 ff.; xi, 19-35. That Kizzuwadna should have spoken Luvian (Forrer, *Sitzungsber. preuss. Ak. Wiss.*, 1919, 1040) which was the language of Cilicia seems *a priori* to be a strong argument in favour of its identity with Cataonia.

Cain behind in Cataonia on their march to the east¹. The most famous, however, were the Philistines, and another tribe was the Shekelesh, and yet another was the Zakkal. It was near Isaura on the eastern Pisidian border that the Philistine name of Achish, Ikausu, has already found a parallel in the woman's name Ακκισις. It was in Pisidia-Isauria that Sagalassus was situated, a city whose name is often compared to that of the Shekelesh. If the other companions of the Philistines, the Zakkal, be the Teukroi, then they would be peculiarly connected with Cilicia Tracheia, which was next door neighbour to Isauria and Pisidia. Similarly several of the Vannic names have been found in this neighbourhood, either actually as they stand or else conforming to a type which was characteristic of Cilicia Tracheia, the country on the southern border of Isauria and on the south-eastern border of Pisidia. There is probably, then, good reason in the comparison that was made long ago² between the name of the district Gurgume³ of the Assyrian chronicles and that of the classical Gorgorome, a city on the Pisidian border near Cilicia Tracheia, Lycaonia, and the city of Isaura⁴. Gurgume was the kingdom of a certain Tarkhulara one of the allies of Rusas of Van in his stand against Sargon⁵. Another of them, the Tarkhunazi who has been mentioned several times already, was captured in his fortress of Tulgarimmu⁶, which seems to be just such another name. Moreover, it will not have escaped notice that these two kings, of Mar'ash and Malâtia respectively, themselves bear names reminiscent of the coastlands of southern Asia Minor and its hinterland. Not only are both their names compounded with Tarku, the god specially venerated in Cilicia, but in the case of Tarkhunazi we have before us once more the form *veas*, which was both Keftian and peculiarly Cilician.

We have been led off on to the question of the homeland whence the users of iron poured out over the Levant, and have found it to have been situated within the area which is shown to have been Keftiu. It is perhaps significant, therefore, that the only country which sent Tuthmosis III a tribute of "vessels of iron (*byr*)" also sent "a silver *shawabty*-vessel of the work of Keftiu⁷."

Thus our area in general, and perhaps Pisidia in particular, proves to be an extremely likely situation for the land, or at least an important part of the land, whence originated the great migrations which brought the Philistines into Palestine and the kings of Urartu to the shores of Lake Van. This, then, is the reason why some of these Vannic names show formations identical with those of the Cilician-Isaurian-Lycaonian-Pisidian area. Now this is the area to which we had already been led by quite other arguments in our search for the land of Keftiu. The evidence, therefore, of this apparently isolated group of Vannic names points to the same conclusion as that already adduced. As it comes from such a very unexpected quarter, it lends all the more powerful support to the belief that Keftiu was the country comprised within the bounds of Cilicia, Isauria, Lycaonia and Pisidia.

¹ Note how the name of the tribe Tubal, or as Herodotus has it Tibareni (III, 94; VII, 78), contains the same Asianic form *tbara*, which is to be seen in the Vannic names Lutipris and Uedipris, and in the Cilician *Pawôžepas* and in the Keftian *Budbr*.

² Olmstead, *Western Asia in the Days of Sargon of Assyria*, 95, note 47.

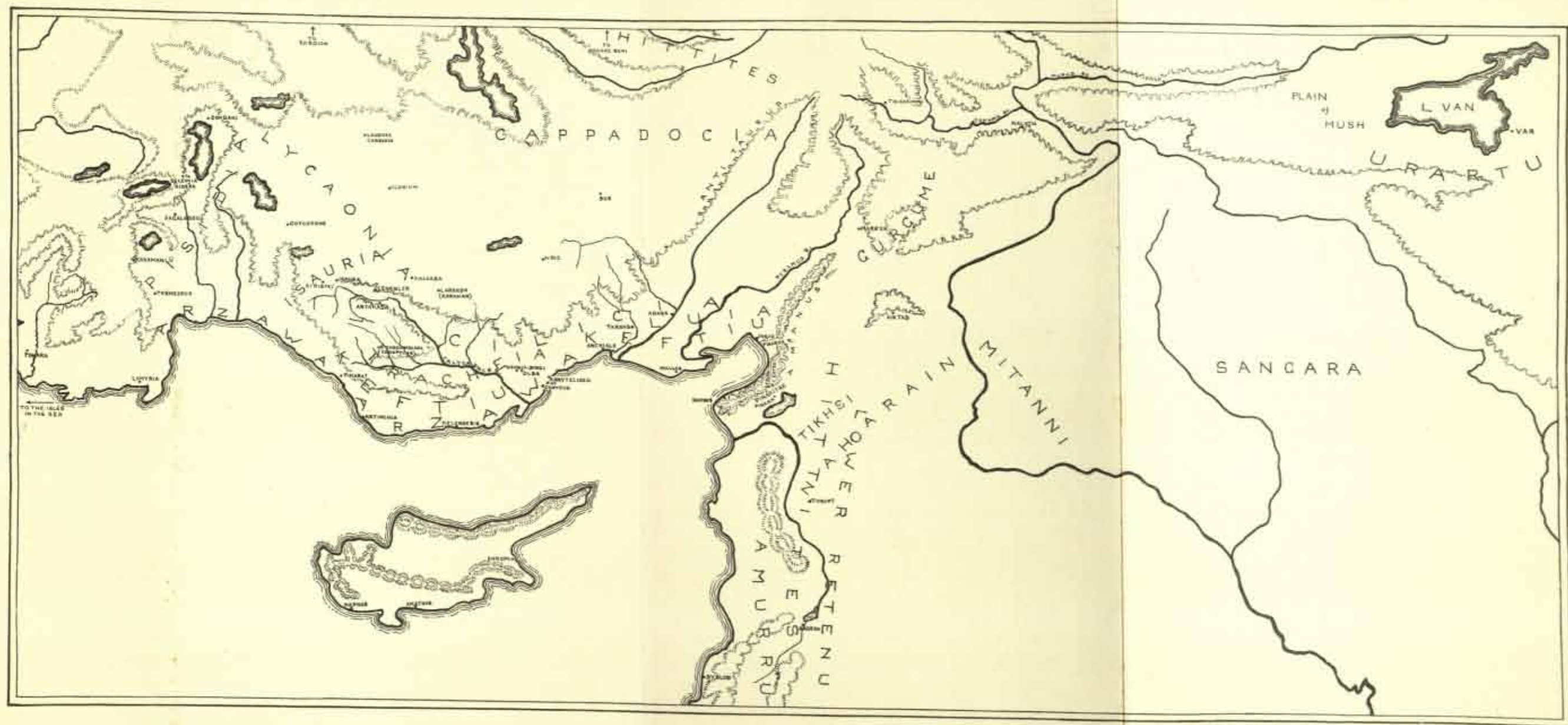
³ For the correctness of the reading Gurgume as opposed to the older Gamgume see R. W. Rogers, *A History of Babylonia and Assyria*, II, 334, note 4.

⁴ Ramsay, *op. cit.*, 335.

⁵ Winckler, *Die Keilschrifttexte Sargons*, 35, l. 209; 37, l. 213; 83, l. 11; 113, l. 83; 149, l. 30.

⁶ Winckler, *op. cit.*, 33, ll. 184, 187; 113, ll. 81, 82. Tulgarimmu was at or near the modern Gürün away to the west up the Tokhma-Su. For a discussion of the evidence see Olmstead, *op. cit.*, 92, note 40.

⁷ Breasted, *Ancient Records*, II, § 537.



Map of Keftiu and adjacent countries.

In conclusion let us note that the Egyptian evidence dates from before the great reshuffling of peoples and states which occurred in the thirteenth and twelfth centuries B.C. It thus provides some interesting information on the history of Asia Minor itself and the permanence of conditions there. The date should also be considered in order to complete the value of the evidence we have been studying. The reader may have been thinking that it was the great migrations of the above-named centuries which had brought our Keftiuan names to the situations in which we find them in Greek times. It is true that these movements caused a great displacement of peoples, among others the transference of the Philistines to Palestine, and of the Vannic peoples to Armenia, and the hurling of the Sea Raiders against Egypt. Serious, however, as the drain on the homeland undoubtedly was, the country was not emptied completely. In his alliance with the king of Iconium the Vannic king shows that wherever practicable the participants in the great migrations kept up relations with the old country. Indeed there is much to show that there was no violent break between the period before the thirteenth century and that after it. Most important for this is the history of our collection of names, for these not only made a group in the sixteenth century but still did so in classical times. Again, *Mnnes*, if it be Mallos, is classed with Keftiu in 1450 B.C. before the migrations, just as long after them in classical times Mallos is still a city of Cilicia. The Hittite tablets seem to tell the same tale, recording as they do place-names that can hardly be other than the well-known ones of the later age. Also in them Sandas appears as a Luvian (Cilician) god just as in Greek times he appears as a Cilician one. In the midst of the migrations themselves, by about 1200 B.C., he or Sandokos seems to have been brought to Egypt as a Keftiuan deity. Finally, Keftiu is brought into connexion with iron in the early fifteenth century, before the migrations, just as succeeding ages knew of famous iron-working centres at the eastern and western ends of the Cilician territory.

After all that has been set out in the foregoing pages there can hardly be any further question as to where we are to look for Keftiu. It is to be found somewhere within the limits of Pisidia-Lycaonia-Isauria-Cilicia. The "names of Keftiu" centre on Cilicia Tracheia. The spell "in the speech of Keftiu" also indicates Cilicia Tracheia, or else Cilicia in general, both by the gods it seems to name and by the fact of its being an incantation. The only country that sent to Egypt "a vessel of the work of Keftiu" also sent "vessels of iron (*by*)."¹ Within the general area that is indicated for Keftiu there was situated at one end the city surnamed ἡ σιδηρᾶ, and at the other the land of the famous smith Tubal-Cain. There is also much evidence that the bringers of the iron age poured forth from the western end of this same country. Round this general area of Pisidia-Lycaonia-Isauria-Cilicia there are a few outlying places where names of the Keftiuan class are to be found. The farthest of them are the kingdom of Urartu on Lake Van and Philistia in southern Palestine. The position here indicated for the land of Keftiu thus fits in perfectly with that demanded by the archaeological evidence that is studied elsewhere.

A GREEK PAPYRUS CONCERNING THE SALE OF A SLAVE

By S. EITREM

With Plate vi.

In my small collection of Greek papyri and ostraca (acquired during a stay in Egypt some twenty years ago) is the papyrus here published (no. 7; cf. *Klio*, xxii, 225), dealing with a sale of a male slave¹. Evidently it is an extract from the original, probably preserved in an Alexandrian *Bibliothēkē*. At any rate it is not a copy, but, as already said, a very much abbreviated *extract*, which only gives the most essential data of the transaction. So, e.g., the *εἰκονισμός* of the slave is written in full (l. 12: *μελίχρω μακροπρόσωπον εὐθύρεινα*, etc.). I have here to thank Professor Wilcken, Professor Schubart, Mr. Bell, also Mr. Leiv Amundsen and Dr. Holst for kindly helping me in the decipherment. There still remain some obscurities, both in reading and in interpretation, which well deserve the attention of papyrologists (Plate vi).

The figure at the top of the document may indicate the number of the *σελίς* in the *εἰρόμενα* of the *Bibliothēkē* (as elsewhere in the *τόμος συγκολλήσιμος* of the *agoranomeion* or *grapheion*).

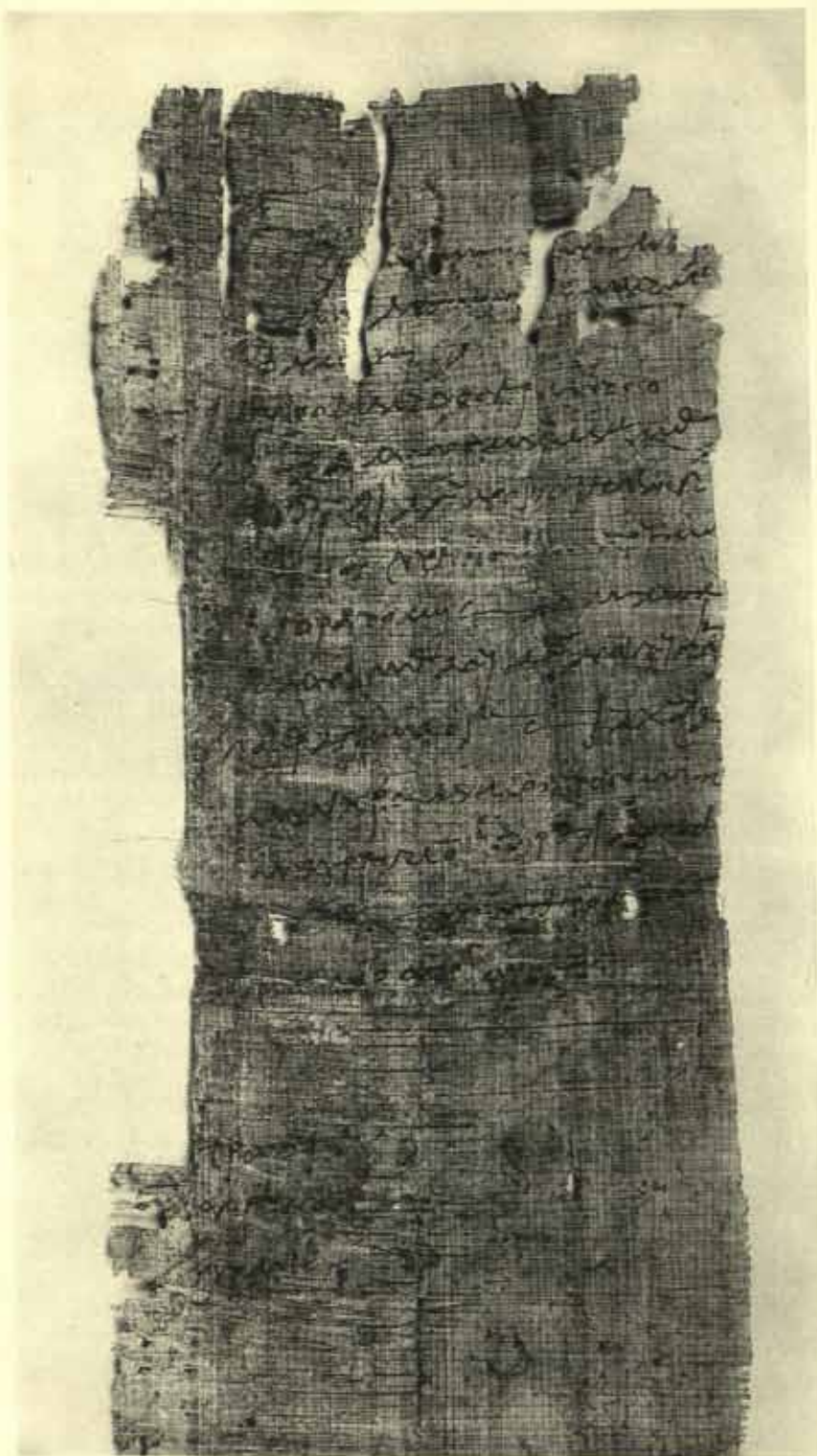
• 5
"Ετους ιζ' Α[ύτ]οκράτορος Κ[α]σαρος Τίτου Αἰλίου
'Αδριαν[οῦ] Ἀντωνεί[ου] Εὐσεβοῦς Σεβ[ασταῦ]
Φαρμ[ο]ῦθι β.

April 7th, A.D. 154.

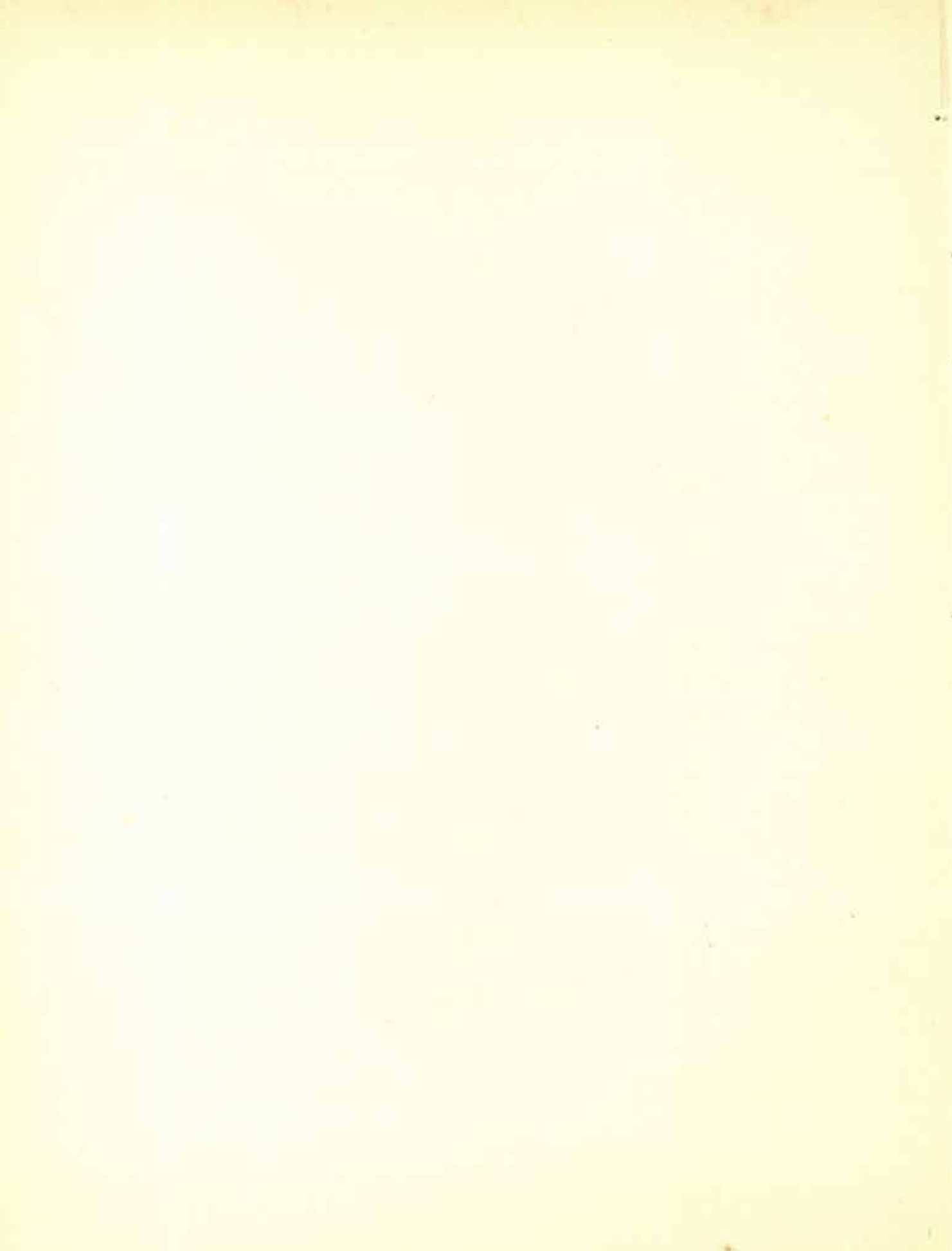
- 5 Τιβέριος Κλαύδιος Ἡρκλανός
(ὡς ἐτῶν) ξα μέσος μελί(χρως) μακ(ροπρόσωπος) εὐθ(ύριν)
ο(ύλῃ) ὀφρ(ύι) δεξι(ᾷ) ἀγ(υῖας) Ἀρσινόη(ς) ἡγόρασε πα(ρὰ)
Τ[ί]του Αἰλίου Σερήνου καὶ ὡς χρη(ματίζει) τῶν
ἡγορανομη(κότων) (ὡς ἐτῶν) λδ μέ(σου) μελί(χρω)
10 μακρ(οπροσώπου) εὐθ(ύρινος) ἀσή(μου) ἀγ(υῖας) Ἀρσινόη(ς) Νεί(κης)
'Αρποκρατίωνα οἰκ(ογενῇ) (ὡς ἐτῶν) ιζ' ΧΞΙΑ
μελίχρω μακροπρόσωπον
εὐθύρεινα ο(ύλῃ) ὀφρ(ύι) δεξι(ᾷ) ἀργυρί(ου)
δ[ρα]χ(μῶν) Ἰω. Γνωστὴρ ὁ ἀποδόμ(ενος)
15 ὃν ἐδέξατο ὁ πριάμενος.
'Ηρώδη(ς) ο β. σ
Σερήνος ο χ
Σεράπης ο . . . [

1. Amundsen reads πς. 2. ιζ' Schubart. 7. οὐ(λῃ) ὀφρ(ύι) δεξι(ᾷ) Schubart. 10. ἀγυ(ῖας)
'Αρσινόης Νεί(κης) Wilcken. 14. δ[ρα]χ(μῶν) Ἰω deciphered by Amundsen. 14/15 deciphered by
Wilcken, Bell, Amundsen.

¹ Cf. S.B. no. 6016, sale of a slave at Alexandria—I cannot say for certain if the two papyri were bought together.



A Greek papyrus concerning the sale of a slave.
Eitrem Collection, No. 7.



5. Ἡρκλανός for Ἡρκουλανός, P. Oxy. 1676, 1 sqq.; P. Soc. Ft. 730; see Mayser, I, 146 (ἐπηκολούθηκα for ἐπηκολούθηκα, sim., "Allegroform").

7. ἀγ(υῖα)ς Ἀρσινόη(ς) and l. 10 ἀγ(υῖα)ς Ἀρσινόη(ς) Νεί(κης) are the correct readings, due to Professor Wilcken; the abbreviations cannot be resolved into (τῶν) ἀ(πὸ) γ(υμνασίου) Ἀρσινόης nor is the formula ἐν ἀγυῖᾳ here admissible. The gen. of the nom. propr. here denotes the region of the city (or town) inhabited by the person in question (= ἀναγραφόμενος ἐπ' ἀμφοδίου, sim.); the following citations will fully illustrate this usage.

The ἀγυαί we know from Alexandria. P. Oxy. 1628, 8; 1629, 7; 1644, 8 gave us the name of ἀγυῖα Κλεοπάτρας Ἀφροδίτης for Oxyrhynchos, and P. Petrie, III, 4 (1), 9 mentioned an ἀγυῖα Ἀρσινόης which probably belonged to Crocodilopolis-Arsinoe—the former document dating from 73 B.C., the latter from 238–7 B.C. The London papyrus, published by Bell in *Archiv*, VII, 19 (Inv. No. 2243) and dating from 252/1 B.C., mentions "streets" named with the cult-names of Arsinoe Philadelphus, and no doubt the editor was quite right in assigning the papyrus to Alexandria though this city was not expressly mentioned (the name had disappeared, l. 3). Our papyrus dates from A.D. 154, and it is not very probable that street-names like "Arsinoe" and "Arsinoe Nike" still existed in Crocodilopolis-Arsinoe or Memphis or in other towns in the 2nd cent. A.D. (cf. Bell's discussion of the evidence, *ibid.*); Oxyrhynchos with its streets and quarters we now know too well to attribute to it an ἀγυῖα in this epoch. The name may here have disappeared with the temple and the cult of Cleopatra Aphrodite.

On the other hand a Berlin papyrus (B.G.U. 1084. 22 = Wilcken, *Chrest.*, no. 146) mentions an Alexandrian citizen and his wife with her κύριος as belonging to the ἀγυῖα Ἀρσινόης Νείκης—the document dates from A.D. 149 and refers to an extract from the records concerned with the ephebeia of A.D. 136. Even if the temple and the cult of Arsinoe did not exist in Alexandria at this time (cf. however Wilcken's note in the *Chrestomathie*), the name of the queen so highly venerated in Ptolemaic times had not been abolished. Probably the street was rather important and well populated and the Alexandrians were always proud of their city's old tradition as capital of an independent kingdom. From the London papyrus we know four Alexandrian street-names connected with the cult of Arsinoe Philadelphus: Βασιλεία, Τελεία, Ἐλεήμων and Χαλκίοικος; we may add the Νίκη (of the Berlin and our present papyrus) and, probably, also the single name Ἀρσινόη from our own document¹. The street-name Ἀρσινόη may of course in our very abridged extract be taken for Arsinoe + a cult-name (e.g., Βασιλεία, the "Arsinoe" being identical with "Queen Arsinoe"), but alongside the Ἀρσ. Νίκη to be mentioned directly it appears to be the full name of a street like the others.

We may here refer to P. Cair. Zenon 59169 where, according to the probable hypothesis of Edgar, Apollonios is speaking of a projected temple or temenos of the "king and the Philadelphos" to be built at Philadelphia; and, according to Wilcken (*Archiv*, VIII, 280), there also existed an Ἀρσινόειον at Philadelphia, connected with the corresponding temple of the Philadelphoi by means of a δρόμος. In Hermonthis exactly the same arrangement occurs (see the London papyrus, quoted by Grenfell in P. Grenf. I, p. 24: οἱ ἱερεῖς τοῦ ἐν Ἐρμῶνθει τῆς Θη(βαίδος) ἱερ[οῦ] τοῦ Μου[θ....]ν καὶ Ἀρσ[ινόης] καὶ θεῶν [ἀδελφῶν], etc.). Consequently we may conjecture that in Alexandria too a temple was built for "Arsinoe" alone, with an ἀγυῖα named after the Arsinoe, and also temples or

¹ [Cf. also the ἀγυῖα Ἀρσινόης Ἐλευ[σιν]ίας of the Michigan papyrus (A.D. 140/1) published in *Journal*, XII, 245–7 = S.B. 7239 (H. I. B.).]

chapels for "Arsinoe *Βασίλεια*," "Arsinoe Nike," etc., with corresponding *ἀγνιά*. Moreover we probably have to add the *ἀγνιά* Ἀρσινόης Καρποφόρου (P. Tebt. III, 883, mentioned in P. Oxy. XIV, 7, see Bell, *ibid.*, p. 22 note).

Thus we have at least eight street-names in Alexandria which are to be referred to the cult of the old Ptolemaic queen. Several of them seem decidedly to point to an amalgamation of the Isis-cult and the Arsinoe-cult. *Βασίλεια*, *Καρποφόρος* and *Τελεία* might go well with an Isis-cult. But *Χαλκίοικος* is the Athena of the Spartans, and Ἀρσινόη Νίκη may also be combined with an Athena. As to the Ἐλεήμων it most probably points to the cult of an Arsinoe Aphrodite (see Bell, *ibid.*, 23, who refers to the gloss in Hesychius, s.v. ἐν Κύπρῳ καὶ Χαλκηδόνι Ἀφροδίτη), but no doubt *ἐλεήμων* is a very appropriate epithet of Isis too (*propitia*, Apul., *Met.* XI, ch. 6, and elsewhere). Isis was the Panthea, the *μυριώνυμος*, whose cult was, as we know, a receptacle of nearly all female cults which favoured the welfare and salvation of humanity. Evidently Ptolemy Philadelphus wanted to impress on his capital, its new streets and new-built quarters, the stamp of Greco-Egyptian religion under the patronage of the defunct queen conceived as a new "Panthea"; the later cult of Queen and King was really got up as a parallel to Isis-Serapis (even locally, as in Philadelphia).

11. The letters XΞΙΑ, following on the statement of the age of the slave, are an unsolved enigma. Perhaps X is to be expanded as *χ(άραγμα)* and the following three letters (*ξια* or *αιξ*) indicate the owner of the slave or a branding mark? Mr. Bell also favours *χάραγμα*, "either as an entry in a register or as a branding mark." As to the following letters Mr. Bell suggests explaining them as "roll 60, col. 11"; the first number seems high, "but possibly if the rolls were numbered consecutively for a period of years (the 14-year census period?) they might number even higher than that." As for the suggestion of a branding mark, I do not believe that slaves were marked in this way, like, e.g., camels (or like the mystae in Bacchic mysteries), perhaps with the owner's name in the genitive; on the other hand a branding mark is a proof of very severe punishment, and therefore no recommendation for a slave offered for sale (and our slave has fetched a very high price too). But here, certainly, before the *εἰκονισμός* of the slave, a reference to the rolls or records (*apographai*) where he is entered and his identity may be established is not out of place. Mr. Amundsen thinks that *ξια* may be an abbreviation for (δε)ξιᾶ, and for this abbreviation refers to l. 7 and l. 13, but the abbreviations are not identical, so far as I can see. We have still to look out for a parallel (*cf.* P. Oxy. 1680, 12).

14. *ξ[ρα]χ(μὼν) Βω*. The price is certainly very high, but slaves seem to have been rather dear at this epoch; e.g., in P. Oxy. 95 (A.D. 129) a slave 25 years old is sold for 1200 drachms and B.G.U. 887 (A.D. 151) a female slave for 1400 dr. (see Segrè, *Circ. mon.*, 124). Our slave is a *verna* (*οἰκογενής*), a fact which raises the price.

γνωστήρ ὁ ἀποδόμ(ενος) ὃν ἐδέξατο ὁ πριάμενος. The formula is no doubt a conventional one, but until now we have not heard of the *γνωστήρ* as necessarily officiating at the sale of a slave—and as being identical with the seller. We meet with the *γνωστήρ* in contracts of manumission and of marriage (see Mitteis, *Grundz.*, 51, *cf.* "Nachtr." p. x; Partsch in his commentary on P. Freib. 10, 11, = S. Ber. Heid. 1916, no. 10, 38), and at the Epikrisis of the ephebi (Wilcken, *Chr.*, no. 145, 13, note). Finally he is mentioned in a declaration of surety, B.G.U. 581 (A.D. 133): τὸν δὲ προγεγραμμένον Γάϊον Λογγίνον Πρέϊσκον γνωρίζει Δούκιος Ὀκτάνιος Λόγγος—Priscus is himself the surety for a certain Socrates¹. Partsch (*Bürgsch.*, 38), when summing up his view, states his opinion thus:

¹ [γνωστῆρες also regularly occur in the (unpublished) certificates of birth at Antinoopolis in the British Museum (H. I. B.).]

"Der hellenistische Gnoster ist nur vorstellender Identitätszeuge oder *cognitor* für die Zahlungsfähigkeit eines Bürgen (cf. the liturgies), Geschäftszeuge (at the manumission) oder Personenstandzeuge". At least in the marriage-contract P. Oxy. 493, 16 (A.D. 127) he may be only the "certifier of both parties," *γνωστήρ ἀμφοτέρων* (cf. Mitteis in his *Chrestom.*, 324), i.e., a witness of their identity, *ὅστις γνωρίζει ἀμφοτέρους* or *qui utrumque cognoscit* (cf. *C.J.*, vi, 30, 22, 2b). But in P. Oxy. 722 (A.D. 91 or 107) he is *γνωστήρ τῆς ἐλευθερώσεως*, witness of the identity of the persons in question and, simultaneously, of the act of manumission itself now fulfilled. In a contract of sale like ours the *γνωστήρ* has first of all to testify the identity of the parties—most of all of course of the slave whose *εἰκονισμός* is fully written out (without abbreviations)—but at the same time he has to guarantee that the slave really possesses all the qualities mentioned in the document, and principally that he is free from all hidden faults of body and mind (as these ordinarily are registered in such documents). In our papyrus, which only gives a very much abbreviated extract of the original document, the formula runs: *γνωστήρ ὁ ἀποδόμενος ὃν ἐδέξατο ὁ πριάμενος*. The names of the persons are left out, and the seller is himself his own "witness." The nearest parallel is the formula used in so many documents of sale: *προπωλητῆς καὶ βεβαιωτῆς τῶν κατὰ τὴν ὥνὴν ταύτην X ὁ ἀποδόμενος ὃν ἐδέξατο X ὁ πριάμενος* (cf., e.g., B.G.U. 998 = P. M. Meyer, *Jur. Pap.*, no. 35; P. Soc. Ft. 1018, 1022, 1024/5 of 110 B.C.), i.e., the seller is his own "Eviktionsgarant" (Mitteis, *op. cit.*, p. 189, but cf. Partsch, p. 354). At any rate the *γνωστήρ* and the *προπ. κ. βεβαιωτής*, originally a third person, not interested in the sale, have become too elaborate and inconvenient in an everyday judicial affair, and the whole formula has been simplified and often left out. It is not due to mere chance that the *γνωστήρ*-formula now for the first time emerges from the papyri.

16. The names written below the body of our document are somewhat enigmatic. Mr. Bell is inclined to think that they are no part of the document but a short account of corn: *Ἡρώδης* (*ἀρτ.*) κ, etc. But they are written by the same hand as the sale of the slave, the extract from which is before us. Have we to explain the names subscribed as the witnesses of the transaction, the whole document as a *ἐξαμάρτυρον*? So Mr. Amundsen proposes, and consequently writes l. 16: *Ἡρώδης* (B). σ ..., l. 17 *Σερῆνος* (), X ... (l. 18 the 6th name has vanished). In view of the *ἀποχαί*, P. Cat. Rain. 16 (A.D. 193) and B.G.U. 989 (A.D. 226)—both styled *ἐξαμάρτυρον*—further of B.G.U. 260 (A.D. 90), l. 6 *ὅποτε ἐὰν αἰρῇ, ἐκδώσω σου ἐξαμάρτυρον ἀποχίν*, we may think this a probable hypothesis until better evidence comes to light. The sum in question may have made this more elaborate and old-fashioned way of settling the transaction desirable (cf. Wilcken in *Archiv*, v, 205 sq.). The abbreviations following on the names remain difficult to solve; we expect some indication of their *εἰκονισμός* or of their witnessing the transaction as *μάρτυρες*.

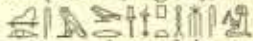
Additional note. For the stigmata on the wrists of slaves cf. moreover San Nicolò in *Charisteria Alois Rzach*, 1930, 163 sqq. = Contenau, *Contrats néo-babyl.*, II, 248—from 328 or 323 B.C.; P. Par. 10 = Wilcken, *U.P.Z.*, I, 121, pp. 566 ff. (the runaway slave is a Syrian from Bambyke, *ἐστιγμένος τὸν δεξιὸν καρπὸν γράμμασι βαρβαρικοῖς δυσίν*; see Wilcken's note and his commentary on Lucian, c. 59 in *Festgabe Deissmann*, p. 7).

OBJECTS BELONGING TO THE MEMPHITE HIGH-PRIEST PTAHMASE

By H. R. HALL

With Pl. vii.

The British Museum possesses five objects belonging to Ptahmase, *wēr-kherp-hem* or High-priest of Ptah at Memphis in the reign of Amenophis III (see Newberry, *Proc. Soc. Bibl. Arch.*, xxi (1899), 306).

1. No. 4640 (Pl. vii, fig. 2), an alabaster vase with horizontal inscription on the front of the bulge , "Osiris, *sem* and *wēr-kherp-hem*, Ptahmase"; of jug form, with handle prolonged in a double-ribbed band round the upper part of the neck immediately beneath the lip; the handle is broken away but leaves enough to show that it was ornamented with three parallel vertical incised lines and ended in a double-ribbed "turn-up." Originally it had a splayed foot in a separate piece of stone with a hole into which fitted the peg in the bottom of the vase as it now is. It is $7\frac{1}{2}$ ins. (19 cm.) high, and belonged to the Anastasi Collection, acquired in 1839.

2. No. 54989, the vase-shaped head of a full-size model of a ritual or ceremonial staff, in alabaster (Pl. vii, fig. 4) with rather roughly cut inscription *sm wr hrp hm Pth-ms*. The uraeus in front has lost its head. The object fitted into the staff by means of a peg which is in one piece with the object, like that at the base of the vase. Ht. $3\frac{1}{2}$ ins. (8.2 cm.). Nash Collection, 1920. Newberry, *P.S.B.A.*, xxi (1899), 305, Pl. ii.

3. No. 5683 (Pl. vii, fig. 1). Pestle and mortar, of a hard brown breccia, of the colour and appearance of maple-sugar. The pestle is roughly inscribed vertically *sm wr hm ms*, with the Ptah omitted by mistake; the mortar is similarly inscribed (but with Ptah not omitted), also vertically across the convex nether-side. The pestle is of bulbous form, the mortar is simply a heavy saucer with broad rim. The former is $3\frac{1}{2}$ ins. (8.8 cm.) high, the latter $4\frac{1}{2}$ ins. (11.5 cm.) in diameter. This interesting set of objects, belonging together, was for many years in the collection of the Société Jersiaise, at St. Helier's, whence they were transferred to the British Museum in 1925. They were published by Mr. A. E. P. Weigall in *P.S.B.A.*, xxiii (1901), 12, with a line drawing. I republish both them and the staff-head (2) here to record their transference to the British Museum.

4. No. 5472 (Pl. vii, fig. 1). Model knife, of ordinary limestone (*dabsh*), blackened. On one side very roughly inscribed *sm wr hm Pth-ms*. The handle is broken off. Lth. 4 ins. (10.2 cm.). Old Collection; unknown provenance.

5. No. 2939 (Pl. vii, fig. 3). Scarab, of white jasper(?), set in a plain gold ring of round section. Anastasi Collection, 1839. Mentioned, but not illustrated, by Newberry, *ibid.*



1



2



3



4

Objects of Ptahmase.

1. Pestle and mortar of breccia and model knife of limestone. *Scale c. 1/2.*
2. Alabaster vase. *Scale c. 1/2.*
3. Scarab of white jasper (?) set in gold ring. *Scale c. 1/2.*
4. Alabaster head of a ritual staff. *Scale c. 1/2.*

Newberry mentions other objects of Ptahmase elsewhere¹, viz. his statue and stela at Florence, his fine scribe's palette of basalt in the Louvre, and his kohl-pot and kohl-stick at Leyden. Dr. van Wijngaarden tells me that among other objects with his name at Leyden are five vases of alabaster and two cubit-measures of stone; I find three of the vases figured by Leemans, *Monuments égyptiens...à Leide*, II (1846), Pls. lx, lxi, Nos. 299, 305, 309.

¹ Other objects are mentioned by Petrie, *Hist. Eg.*, II, 200. Leyden possesses the upper part of a gilt stela of Ptahmase and his brother (?) Meriptah; Boeser, *Beschreibung, N.R.*, III, 205.

MOSCOW MATHEMATICAL PAPYRUS, No. 14

BY W. R. THOMAS

In their article *Four Geometrical Problems from the Moscow Mathematical Papyrus* published in this *Journal*, xv (1929), 167-185, Gunn and Peet, in their attempt to reconstruct the process by which Egyptian mathematicians (Moscow Papyrus, 14) obtained the formula $\frac{h}{3}(a^2 + ab + b^2)$ for the volume of a truncated pyramid, start with the frustum as an entity which, without retracing the process of truncation by completing the missing part, they dissect into various geometrical components that regrouped yield the result $(a \cdot b)h + \frac{(a-b)^2 h}{3}$. This they transform into $[3ab + (a-b)^2] \frac{h}{3}$, and finally, by a further process of geometrical regrouping, reach the desired $(a^2 + ab + b^2) \frac{h}{3}$. It will probably be admitted that the whole process is ingenious but not convincing.

In this *Journal*, xvi, 245, Vogel points out that Heron in *Metrica*, II, 7, enounced the general method of determining the volume of a truncated solid as the difference of two complete solids, and this seems to be a natural process. Vogel does not carry his explanation further, but proceeds (p. 249) to the alternative suggestion that the formula for the truncated pyramid should be written $\frac{a^2 + ab + b^2}{3} \cdot h$, and that the former factor should be taken as the average of three areal approximations.

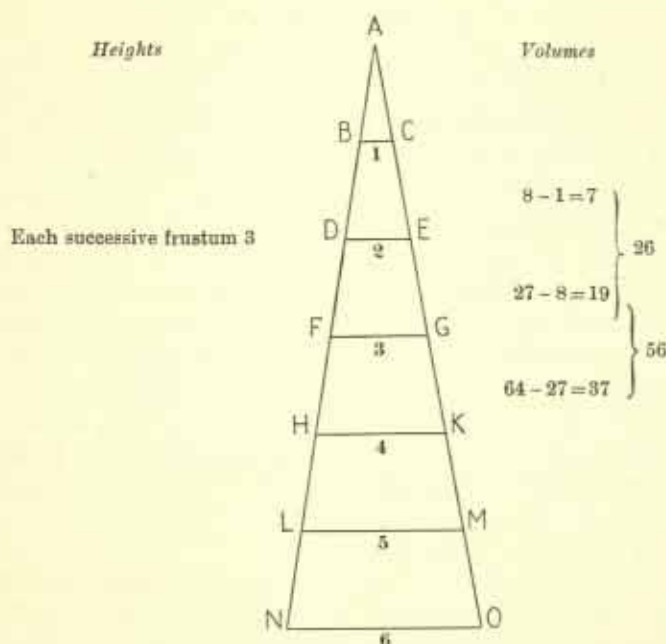
It seems however that his earlier suggestion is capable of further development, and that the mysterious $a^2 + ab + b^2$ may have been reached by various arithmetical manifestations of the truth that it is $\frac{a^3 - b^3}{a - b}$, and that indeed, if a and b are any two consecutive integers, $a^2 + ab + b^2 = a^3 - b^3$. The following is an attempt to reconstruct such a mental process.

A truncated pyramid was a familiar sight to the mathematician when the Pyramids were being built, and the question of the amount of material and labour (as well as time) required to complete the task must often have engaged his attention. He knew, or discovered from a mud model, that he was half-way up when his base edge had shrunk to half its original size, and it is at this stage (with edges 4 and 2) that the truncated pyramid is presented in the Moscow papyrus. Suppose that he took a pyramid of mud on a square base, cut the top off half-way down, and compared it with the original. The larger pyramid is twice as long, twice as broad, and twice as high, as the smaller one: it is therefore $2 \times 2 \times 2$ times its content or volume. The Egyptian must often have noticed that any change in the length, breadth, or height of a surface or solid produces a directly proportional change in the area or volume. Thus he could conclude that one pyramid was eight times the other even without the formula $\frac{1}{3}B \cdot h$ (although his knowledge of this formula is suggested by his use of the factor $\frac{h}{3}$ in the problem under consideration). The pyramids being 8 and 1, the truncated part is 7. This number has at all times attracted attention,

and its most striking property, especially to the Egyptian with his process of multiplication by continued doubling, is that it equals $1 + 2 + 4^1$.

His next step was to attach to the figure some convenient linear dimensions, and the drawing in the papyrus shows that he decided on a pyramid of a semi-vertical angle $\cot^{-1} 6$, i.e., he made his height three times his base edge. He thus obtained unit volume as well as unit base, and showed *per accidens* his knowledge of $\frac{1}{3} B \cdot h$.

The thought-diagram can now be built up and carried on *ad lib.*



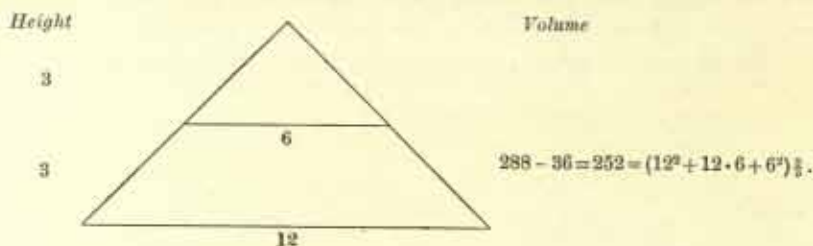
It is probable that the thought-process passed from *BDEC* to *DHKE*, by the usual doubling method: indeed the latter frustum is precisely that given in the papyrus, the dimensions being those best suited for mnemonic generalization (on Gunn and Peet's principle of utmost simplicity without the ambiguity inseparable from the number unity). It is possible that at this point the investigator made his happy guess of $a^3 + ab + b^3$. He may indeed have spent some time over the confusing thought that $56 = 7 \times 8 = (1 + 2 + 4) 8$, before he realized, as the papyrus shows he did, that 56 also

$$= (4 + 8 + 16) \times 2 = (2^2 + 2 \cdot 4 + 4^2) \frac{8}{3}.$$

With regard to the generality of the result two questions arise: (i) did the enquirer limit himself to frusta with one edge double the other, (ii) did he confine himself to faces of slope $\tan^{-1} 6$? To both questions negative answers can be returned. (i) If he had worked merely by bisection or duplication, he would not have broken up his initial 7 into $(1 + 2 + 4)$, but would have remained content with some such formula as $7a^2 \cdot \frac{h}{3}$, which is true of

¹ Indeed in Rhind, 79, he seems to know that $1 + 7 + 7^2 + 7^3 + 7^4 = \frac{7^5 - 1}{7 - 1}$. Here the number 7 is a mere coincidence: the essential is that he knew the simpler fact that, for values of n up to 5, $1 + 2 + 2^2 + \dots$ to n terms $= 2^n - 1$.

course for the series of frusta *BDEC*, *DHKE*, etc., but is negated by the other frusta in the diagram. (ii) A slope of $\tan^{-1} 6$ is of little practical use; the Old Kingdom pyramids vary from 43° to 55° . Once the correct formula was obtained it could easily be extended, in the first instance to fundamental cases such as frusta of slope 45° :



The argument for the reconstruction here attempted may now be briefly summed up. The Egyptian, according to the two papyri, had explored nearly the whole field of mensuration, and had arrived in every case at correct results of general application. The whole system of deductive mathematical "analysis," as the word is understood to-day, appears to have been outside his ken, both in its geometrical and its algebraical form: at all events there is no indication of such a method in the papyri, and we must still be content to assign its discovery to the Greeks and the Arabs. There remains only, according to logicians, the inductive method of trial, hypothesis, falsification, and verification, used alike by the modern scientist and prehistoric man. This inductive method, as applied above to the truncated pyramid, requires a knowledge of the Theory of Numbers which is abundantly illustrated in the Rhind papyrus, especially in the section which deals with the expression of fractions as aliquot parts.

It may be added that the compilers of the two papyri, as well as the subsequent scribes, show little knowledge of the mind of the original investigator. It is possible that, like many writers of European arithmetic text-books two centuries back, they were ignorant alike of the reasons for the rules laid down and of the methods by which they had been obtained. The concluding sentence in the Moscow problem ("you will find it right") may however indicate that the writer knew his rule to be of universal application.

REED-FLOATS IN MODERN EGYPT

By G. D. HORNBLOWER

The survival to our days of the reed-float has been demonstrated by Professor Breasted for Nubia and by Mr. Milne's photograph for the Baḥr Yûsef in Middle Egypt (*Journal*, iv, 174-6 and 255), but its use on the Nile about Cairo in the middle of last century has been hardly noticed. Evidence for it is seen in an illustration of Nile boats forming the subject of Pl. 65 of the description of Modern Egypt published in serial parts by Firmin-Didot, Paris, 1877, in the series *L'Univers; histoire et description de tous les peuples*. A line-drawing of the relevant portion of that plate, for which I am indebted to the kindness of Miss M. F. Broome, is here reproduced. It shows a nearly



naked man astride a bundle of reeds, legs dangling in the water, paddling himself along, with his clothes piled up behind him on the float. The bundle of reeds is single, not double as in the cases previously recorded, including the ancient Egyptian one which necessitated the use of the dual form *shnwt*¹.

We need not conclude from the plate that the float survived as late as the date of publication of the book, for the plate is some thirty years earlier. The book is generally known as Marcel's and is composed of three parts, of which he wrote only the first, on Egypt under Islam till the French occupation, while the two others treat respectively of that occupation and of the reign of Mohammed Ali, founder of the present dynasty. The last part is dated to 1847 by a passage in the text, and the map of Cairo is dated

¹ In the *Pyr. Texts*, Spell 303, par. 464, the gods of the four cardinal points are invoked to provide the king with the four *shn* that had been given to Osiris that he might sail to paradise (*fbh*); it would seem that in this case the boat supplied was composed of four bundles of reeds, a safer conveyance than those recorded by Professor Breasted.

1845, though it is only a reproduction of the map drawn up by the savants of Napoleon's expedition and cannot be correct since the Nile at this point changed its course very rapidly during the nineteenth century. The plates themselves, engraved on copper, display personages and costumes of the time of Mohammed Ali, and we may conclude that this form of boat was observed on the Nile about the year 1845.

It is perhaps worth recording that, frequently as I used to ride by the Baḥr Yûsef or ferried across it, not seldom by Beḥnesah, I never saw, or even heard of these fishermen's floats; their fishing may have been seasonal, but in any case this provides another material warning against the acceptance of "negative evidence."

THE STELE OF THETHI, BRIT. MUS. No. 614

By AYLWARD M. BLACKMAN

With Plate viii.

This important stele was first published by Mr. G. C. Pier in the *American Journal of Semitic Languages and Literatures*, xxi, 1905, 159 ff. As it was in the hands of a dealer at the time when Mr. Pier came across it, he was only able to make a hasty copy of it, and the text accordingly was in places uncertain. Along with Mr. Pier's article was published one by Professor Breasted, entitled *New Light on the History of the Eleventh Dynasty*, 163 ff., and containing a translation of Thethi's biography. This translation Professor Breasted republished in his *Ancient Records of Egypt*, §§ 423 B-G. Since that date the stele, which was acquired by the British Museum and now bears the registration number 614, has been published by Mr. P. D. Scott-Moncrieff in *Hieroglyphic Texts from Egyptian Stelae &c., in the British Museum*, 1 (1911), Pls. 49 f., and by Sir E. A. Wallis Budge in *Egyptian Sculptures in the British Museum* (1914), Pl. viii.

Mr. Scott-Moncrieff's version of the inscriptions, though not altogether satisfactory, shows some improvement on the hasty, yet in view of the circumstances in which it was made, admirable copy of Mr. Pier. Finally, Sir E. A. Wallis Budge's splendid photographic plate completely established the text, except in one or two places where the signs have been damaged. These few remaining obscurities have been removed by a careful examination of the original.

As no translation of Thethi's biography has appeared since that of Professor Breasted, I venture to offer to readers of this *Journal* a rendering by myself both of the biography and of the other inscriptions. This is the fruit of lengthy discussions with pupils at Oxford with whom I have often read these texts. I have also had the great advantage of discussing certain obscure points with Professor A. H. Gardiner.

By the courtesy of the Keeper of Egyptian and Assyrian Antiquities in the British Museum I am able to reproduce here the photograph from which Sir E. A. Wallis Budge's plate was made, Pl. viii.

The stele, which was found, according to Pier, *op. cit.*, p. 159, at Dirâ' Abu 'n-Nagâ, according to Budge, *op. cit.*, p. 9, at Kurnah, and according to Scott-Moncrieff, *op. cit.*, at Karnak¹, is of fine white limestone and measures five feet in height and three feet seven inches in width. It shows no traces of having been painted. It dates from the earlier part of the Eleventh Dynasty, having been executed in the reign of Intef II, the second monarch of that line².

The upper portion of the stele is occupied by fourteen horizontal lines of text in sunk relief—the biographical inscription. Most of the lower portion is given up to a scene

¹ Mr. H. E. Winlock has good grounds for believing that it came from the Intef cemetery which lies in the plains north and east of the mouth of the Valley of the Kings, *Amer. Journ. Semitic Lang.*, xxxii (1915), 14 and 17, note 1.

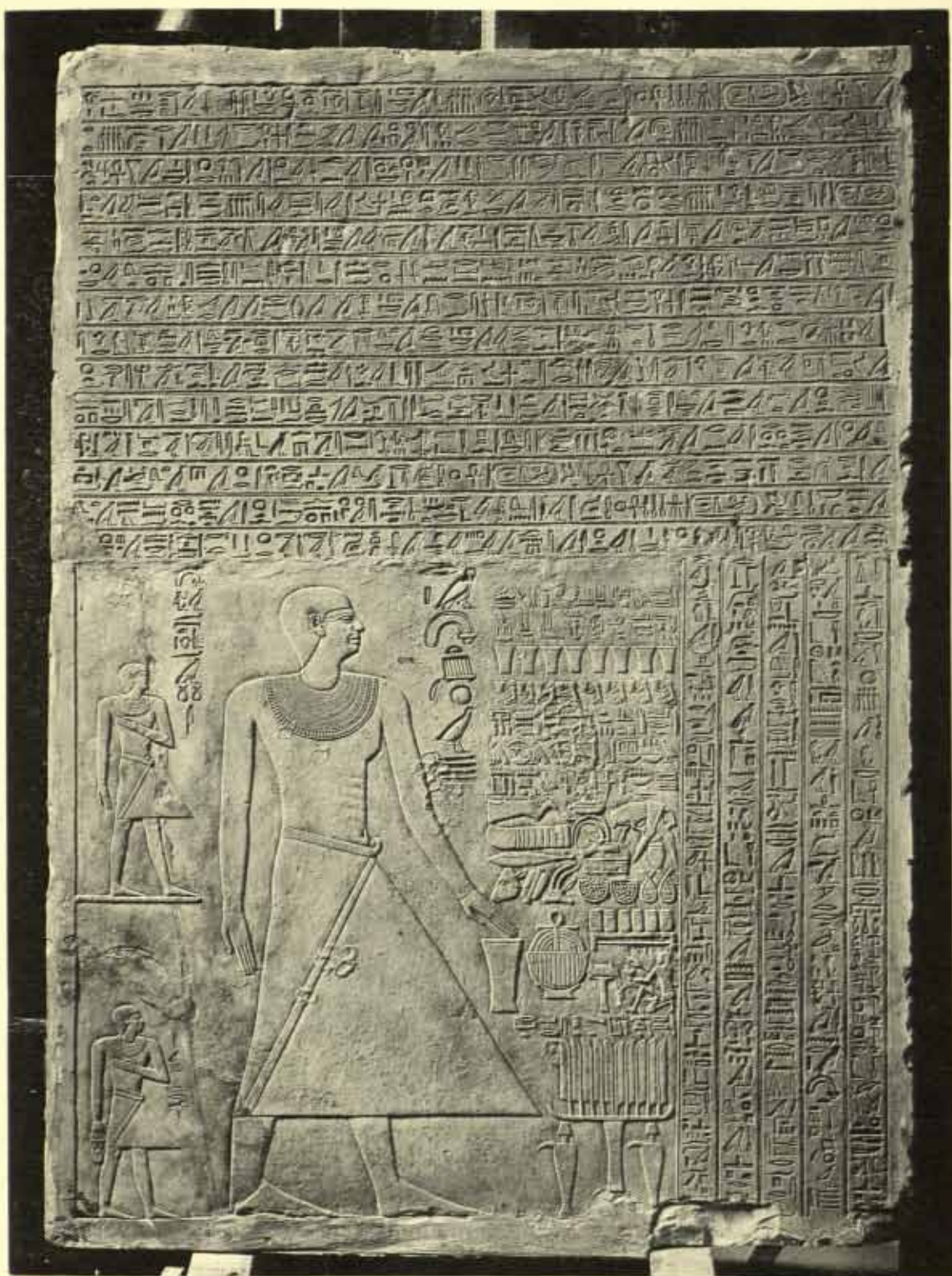
² See J. Polotsky, *Zu den Inschriften der 11. Dynastie in Sethe, Untersuchungen*, xi, 9.

depicting Thethi, accompanied by two attendants, standing before a great array of funerary offerings. The scene together with the explanatory legends—but not the names and titles of Thethi and his two followers, which are in sunk relief—is in low relief of admirable quality, indeed of a quality almost comparable with that of the reliefs on the sarcophagus of Princess Kawit, which dates from the latter half of the dynasty. The remaining space in the lower portion, the right side, is filled with five lines of text in sunk relief. The signs both in this and in the biographical text are well cut but some times unusually formed. These peculiarities will be duly pointed out in the notes.

TRANSLATION.

Lines 1-14, horizontal.

(1) *Horus, Long-Living, King of Upper and Lower Egypt, Son-of-Rē-Intef, Who created¹ Beauty—may he live like Rē for ever! His true servant² of his affection³, advanced of place in his lord's house, an exceeding wise magistrate⁴, that knoweth his lord's will, that followeth him in all his goings, that alone is the heart (2) of his Majesty⁵ in very truth, the foremost of the great ones of the palace, that presideth over⁶ the precious things in the inaccessible place which his lord hid from the great ones⁷, that diverteth the heart of Horus with what he wisheth⁸, in the confidence of his lord, his beloved, the superintendent of the precious things that are in (3) the inaccessible place which his lord loveth, superintendent of precious things, liegeman⁹ of the King, the honoured one, Thethi¹⁰, saith¹¹: I was one beloved of his lord, praised of him all day and every day. I spent a long period of years¹² under the Majesty of my lord, Horus, Long-Living, King of Upper and Lower Egypt, (4) Son-of-Rē-Intef, when this land was under his supervision¹³ southward to Elephantine¹⁴, ending at This¹⁵ of the Thinite nome, the while I was his body-servant, his liegeman in very truth. He made me great, he advanced my station, he took me into (5) his confidence¹⁶ in his palace of privacy¹⁷, precious things being in my charge under my seal¹⁸, even the choicest of every good thing that was ever being brought to the Majesty of my lord from Upper Egypt and from Lower Egypt, consisting of every thing that giveth pleasure¹⁹, and of the produce of this entire land, because of the fear of him throughout (6) this land²⁰, and that was ever being brought to the Majesty of my lord by the hand of the chieftains that rule over²¹ the Red Land, because of the fear of him throughout the hill-countries. Now he entrusted these things to me having ascertained how very diligent I was²², and I made report thereon unto him. Never was there any shortcoming (7) therein²³ worthy of punishment, inasmuch as I was prudent. I was indeed one who is truly in his lord's confidence, an exceeding wise magistrate, of quiet disposition²⁴ in his lord's house, bending the arm²⁵ amid the great ones. I used not to strain after (8) evil²⁶ on account of which men are hated²⁷. I am one that loveth good and hateth evil²⁸, a character that is loved in his lord's house, one that used to execute every duty according to²⁹ the will of my master. Now as for any business to which he ordered me to attend³⁰, (9) such as directing³¹ a matter for a petitioner, attending to the plea of one in need³², I used to do it aright. I used not to transgress the instruction³³ that he enjoined upon me, I used not to put one thing in the place of another. I was not blustering³⁴ in proportion to (10) my wealth³⁵. I did not take anything wrongfully³⁶ in order to transact any business. Now as for every royal apartment which the Majesty of my lord committed unto me and for which he caused me to carry out a commission, even whatsoever his soul desired, I did it for him³⁷; I completed all that was laid down with regard to them³⁸. Never (11) was there any shortcoming therein, inasmuch as I was prudent. I fashioned a mhy-barge for the City, a shy-t-boat for accompanying my lord when reckoning was made³⁹ with the great ones, any*



Stela of Thethi. Brit. Mus. No. 614.

Scale $\frac{1}{4}$.

occasion of convoying or despatching. So I was wealthy, I was great, for I furnished myself (12) with mine own property, which the Majesty of my lord gave unto me, inasmuch as he loved me always,—Horus, Long-Lived, King of Upper and Lower Egypt, Son-of-Rê-Intef, may he live like Rê for ever!—until he went in peace unto his Horizon⁴⁰. Now when his son succeeded in his room⁴¹, (13) Har-nakht-neb-tep-nôfer, King of Upper and Lower Egypt, Son-of-Rê-Intef, who created Beauty,—may he live like Rê for ever!—I followed him to all his⁴² goodly places of diversion. Never did he in any wise reproach me⁴³, inasmuch as I was prudent. He assigned unto me every function (14) that was mine in the time of his father, continuing it⁴⁴ under his Majesty. There was no shortcoming therein. I passed all my times upon earth as liegeman of the King attached to his person. I was wealthy, I was great under his Majesty. I was one who made his reputation⁴⁵, whom his lord praised all day and every day.

Lines 15–19, vertical.


(15) May the King be gracious and grant (and) Osiris Khentamenthes in all his places a coming-forth-unto-the-voice, to wit a thousand of bread and beer, a thousand of bulls and birds⁴⁶, a thousand of alabasters⁴⁷ and clothing, a thousand of every good and pure thing, when the meal has been laid⁴⁸; the requirements of the offering-table⁴⁹, (16) the victuals of the lord of Abydos, the pure bread of the house of Menthu⁵⁰, libations, food, victuals, that whereof the spirits ever desire to eat⁵¹, unto the superintendent of precious things, liegeman of the King, the honoured one, Thethi; (17) and that he traverse the firmament, cross the sky⁵², draw nigh unto the Great God, and land⁵³ in peace at the beauteous West; that the Desert open for him her arm (sic), and the West hold out to him her hands; that he attain (18) unto the Conclave of God, that "welcome" be said unto him by the great ones of Abydos, hands be held out to him in the Nšmt-boat upon the pathways of the West, and he go happily, in peace, unto the Horizon, (19) to where Osiris is, and open the paths that he willeth unto the portals that are in the High Land⁵⁴; that They-who-are-in-Abundance may give to him their[...] upon the waste place⁵⁵; and that food be given, his ka being with him,—the honoured one, Th[ethi].





NOTES.

1. Polotsky, *op. cit.*, 11, quotes many examples of this peculiar form of the sign ꜥ.
2. Polotsky, 10, points out that the sign *bi* on these Eleventh Dynasty stelae always lacks the breast-feather; he also draws attention to the unusual shape of the sign here and in line 4.
3. See Gardiner, *Proc. Soc. Bibl. Arch.*, xxxiv, 261, note 14.
4. See Polotsky, 35, who quotes Cairo 20543, 16, a reference which definitely fixes the meaning ꜥ *n ib.f*. Cf. Copt. *nefent, pūfent*.
5. An examination of the original showed that the damaged sign preceding the stroke is ꜥ. For the construction *wt ib hm.f* see *inwk wt kꜥ n Mntw*, I was the only one that was (i.e., that could be named) Bull of Menthu, Piehl, *Inscriptions hiéroglyphiques*, I, Pl. i, l. 3, = Sethe, *Aegyptische Lesestücke*, 81, 19; *inwk wt nht n tꜥ pn*, I was the only one that was the hero of this land, Piehl, *ibid.*, l. 7, = Sethe, *op. cit.*, 82, 5; cf. also *wt pw mnḥ n smnḥ sw*, He was uniquely useful to him who made him useful, Newberry, *Rekhmara*, Pl. vii, 2; *inwk sn-nw kn m pr nswt*, I was second (beside the King) as a man of valour in the palace, Ransom, *The Stela of Menthuweser*, 5.
6. Clearly the nisbe-form of *hnty* is to be understood here.


7. This passage has been completely misunderstood by Breasted, who translates: *in charge of the seal in the privy office, one whom his lord trusted more than the grandees.*

8. See Gardiner, *Eg. Gramm.*, § 389, 3.





9. As the writing  shows, the title must be read *hry-tp nsut* and translated *subordinate or liegeman* (lit. *who is under the head*) of the King, and not *first under the King* as e.g., Blackman, *Rock Tombs of Meir*, iv, 3.

10. The name is written  in lines 3 and 16 and above the list of oils, but  in front of his portrait figure and above the food offerings. The name is recorded as occurring four times in Old, and nine times in Middle Kingdom inscriptions by Lieblein in his *Namenswörterbuch*. In all examples save one of the Middle Kingdom, when it is written , the writing is .

11. In view of the example quoted by Polotsky, *op. cit.*, 56, of *tw NN. dd, dd* is possibly to be regarded as being Old Perfect 3rd pers. sing.¹, rather than an imperf. act. partic., for which see Gardiner, *Eg. Gramm.*, § 450, 1; Gardiner-Sethe, *Letters to the Dead*, 13.


12. Polotsky, 12, points out that the combination  is found as a determinative of a number of words denoting time (of which he gives a list with references) from the beginning of the Eleventh Dynasty to the reign of Amenemmes II. He also notes, *op. cit.*, 22, that the cliché, *I spent a long period of years under King NN.*, is a favourite one in Eleventh Dynasty inscriptions.

13. See Gardiner, *Proc. Soc. Bibl. Arch.*, xxxiv, 261, n. 14.

14. , tentatively read Thes by Breasted, was recognized by Scott-Moncrieff, *op. cit.*, 16, as a writing of *ibw*, Elephantine, in view of the fuller spelling  in Cairo 20543, 10. Polotsky, 15, cites another example of , Cairo 20512, cc, and another of , Lutz, *University of California Steles*, 66, 9.

15. For *hntt-r... pht-r* see Gardiner, *Eg. Gramm.*, § 179.

16. Lit. *put me in the place of his will*. Gardiner, *op. cit.*, 138, translates *put me in a position of his favour*. I prefer the rendering given here, for the meaning of *hrt-ib* is "will," "desires," "mind," e.g., the example above in line 1; *Sinuhe*, B 125; *Urkunden*, iv, 363, 15.

17. The "palace of privacy" (or "solitude") must have been some apartment in which the King discussed matters of a particularly confidential nature with some single, trusted individual. Note the unusual form of the sign *rh* .

18. Note the peculiar form of the sign *q*.

19. *sšr nb n šymh ib*, lit. "everything of diverting the heart." This form of the sign *o* is common in inscriptions of the earlier portion of the Eleventh Dynasty (Intef I to Mentuhotep III); Polotsky, *op. cit.*, 13; Gardiner, *Bull. de l'Inst.*, xxx, 170.

20. Cf. Cairo 20512, 4.

21. "That rule over" rather than "who are upon"; so Gardiner, *Eg. Gramm.*, § 139.

22. Lit. *that my activity was excellent*.

23. So rightly Gardiner, *op. cit.*, § 456, and Polotsky, 24. The latter points out that Gunn's (*Syntax*, 95) rendering *Nothing has ever come against me*, i.e., *I have never been in fault*, is impossible in view of the variant example in l. 14, where *im-s* occurs instead of *im*.

24. Or "unassuming," lit. "cool of temperature"; cf. *kṣ srf* "blustering," or perhaps "arrogant," lit. "high of temperature" in l. 9.

¹ Cf. also *dd-k* "I said," Gardiner, *Eg. Gramm.*, § 312.

hknw, oil of cedar¹, nhnm, twt, forehead unguent² of cedar and of the Thnw, is written: Opening the unguent in the presence of the ka of Thethi³. This action is perhaps expressed by the sculptor having represented five of the eight jars as opened and three as still tied up and sealed. Below each jar is a kneeling figure presenting a ▽-shaped basket. Such a kneeling figure, usually carrying a basket as here, but in certain cases holding some other object connected with the funerary liturgy, is the regular accompaniment of each entry in the more elaborately drawn-up versions of the so-called List of Offerings⁴.

The following legend refers probably not only to the offerings just beneath it, which are evidently supposed to be lying on the ground⁵, but also to the six jars of drink on a low table, the duck on the brazier, the burning incense, the basket⁶, or bowl, with a cover, and the table of offerings with the slices of bread⁷ laid upon it and with the two ewers beneath it:

May the voice come forth for him, and may there be given unto him the requirements (𓆎 𓆏 𓆐) of the offering table (fully) furnished, at the festival of the month, at the festival of the half-month, and at all festivals, for the ka of the King's liegeman, who is in his lord's confidence, Thethi.

In front of the brazier with the duck kneels a man named Ankhi holding a pottery censer⁸, the flame rising from which he is feeding with a pastille of incense. The legend below him describes his action as *applying the hand to the great censer (?)⁹ for the ka of the honoured one, Thethi.*

Nothing need be said here about the historical importance of the biography of Thethi; that has been adequately discussed by Breasted¹⁰ and Scott-Moncrieff, the latter, as already stated in note 14 on p. 58, having rightly read 𓆎 as *ibw*, Elephantine.

On the other hand a most interesting point overlooked by Breasted (see p. 58, n. 7) and, to the best of my knowledge, not hitherto commented upon in writing by any scholar, is that Intef I possessed a secret treasure-chamber which he "hid from the great ones," and of which Thethi was the keeper.

Secret strong rooms like the crypts at Denderah, or less inaccessible treasure-chambers like those at Medinet Habu, were doubtless a feature of all Egyptian temples. However, so far as I know, the biography of Thethi is the only existing ancient Egyptian document that makes any mention of the secret treasury of a king. Thethi's statement promptly calls to our minds Herodotus' story of the secret treasury of Rhampsinitus; but to suggest that that story preserves a tradition about an obscure monarch of the Eleventh Dynasty, or that there could be any connexion between *Sr-Rt-Intf* and Rhampsinitus, is to exceed the bounds of probability.

¹ See Gardiner, *Admonitions*, 33.

² See Blackman, *Journal*, vi, 58 ff.

³ It will be observed that Thethi is represented as about to dip the tip of his fingers in an open jar of unguent.

⁴ Newberry, *Beni Hasan*, II, Pl. xv; Blackman, *Rock Tombs of Meir*, III, Pls. xxi f. and xxv f.; Naville, *Temple of Deir el-Bahari*, Pls. cxii f.; Mariette, *Abydos*, I, Pl. 33; Dümichen, *Grabpalast des Petusamenap*, I, Pls. vi ff.

⁵ For oblations laid on the ground as well as upon the offering-table itself see the passage quoted above, p. 60, n. 48; also Piehl, *Inscr. hiérog.*, I, lxxxii, A; Lange, *Sitzungsber. Berl. Acad.*, 1914, 999.

⁶ See Jéquier, *Frisse d'objets des sarcophages du Moyen Empire*, 292.

⁷ See Blackman, *Rock Tombs of Meir*, III, 33, n. 5.

⁸ Cf. Jéquier, *op. cit.*, 321, fig. 826.

⁹ 𓆎 is almost certainly the reading, and the word must be identical with 𓆎, which according to *Wb. d. aeg. Spr.*, IV, 333, means "lamp" and occurs only in Late Egyptian. That in Late Egyptian *stt* should primarily mean "lamp" is of no consequence, for the pottery vessel depicted here could apparently be employed for both illumination and fumigation. On this see N. de Garis Davies, *Journal*, x, 9 ff.

¹⁰ *Ancient Records*, I, § 423.

the cavalry, the overseer of infantry, the chief of auxiliaries, the royal messengers and two scribes.

Pap. Mook (6-7): the two viziers, two lieutenant-generals (*idnw*), a chief.....(*hry kmr*), and two standard-bearers.

Pap. Berl. 3047 (4-7): the chief priest of Amūn, two prophets of Amūn, a prophet of the temple of Mut, a prophet of the temple of Khons, the.....of the temple of Amūn, two *wrb*- and lector-priests of Amūn, a *wrb*-priest of the temple of Amūn, and a scribe of accounts of the court of Nō.

Pap. Gurob II, 1: two prophets and three *wrb*-priests.

Pap. Gurob II, 2: two prophets, two *wrb*-priests and a *wrtw* of the troops.

Pap. Moscow 5657, 10-12 (unpublished): three prophets, six *wrb*-priests and a chief of guards.

Pap. Berl. 10496, vs. 8-10: two chiefs of workmen, a scribe of the vizier, a workman and a lieutenant (*idnw*).

It clearly follows from the examples cited that the members of the *knb.t sdmw* do not come from a single social group; both the vizier and the worker in the Necropolis¹ might be members of it. It depends entirely on the nature of the court with which we are dealing, whether it is the central court, a local court or a temple court. And if we compare the personnel of the *knb.t sdmw* in the Inscription of Mes and in Pap. Mook with that of the court in the capital (*ḥm.t*) in Pap. Abbott²; the personnel of the *knb.t sdmw* in Pap. Berl. 10496 with that of the court of the Necropolis (*ḥm.t*) of the Cairo Ostrakon No. 7³, we find no difference between them.

Thus neither in the importance of the matters dealt with nor in personnel have we found any features peculiar to this type of court. Indeed, if we turn to the texts which we have been using up to the present we shall find that in some of them the court is variously named.

In Pap. Berl. 10496, vs. 8, it is called *ḥm.t*, but in vs. 12, where the oath administered to the accuser is referred to, the same court is termed merely *knb.t*. In the Inscription of Mes, after the enumeration of the members of the *knb.t sdmw* we find (S. 8): "before the court (*ḥm.t*) of this day." In Pap. Berl. 3047, 4 the court is also spoken of as "the *knb.t* of this day."

All this, as well as the fact that the temple court⁴ also was called *knb.t sdmw*, shows that no special category of court is indicated by this term.

Such an interpretation, however, does not explain the meaning of the word *sdmw*. It becomes fully comprehensible only when we take into consideration the character of the *knb.t* itself. The generally accepted translation which we have given of *knb.t*, "court," "Gericht," although agreeing with its use in juridical texts, is not really accurate; it involuntarily gives the impression that the *knb.t* is an institution similar to those which exist at the present day, whose sole concern is legal proceedings. Out of this false impression created by an inaccurate translation has sprung the misconception

¹ The usual rendering of the word *ḥm.t*, as "workers" in no way corresponds to the social position occupied by this group of people. The position of these people can in many respects be compared to that occupied by the guild master in Feudal Europe. Having found no better equivalent for it, I have left the old term.

² VII, 2-6.

³ Gabra, *op. cit.*, 32.

⁴ *E.g.*, Berl. Pap. 3047; Pap. Gurob II, 1 and Pap. Gurob II, 2; Pap. Moscow 5657.

with regard to the word *šdmw*. In actual fact the rôle of the *knb.t* was by no means confined to judicial functions¹. Members of the *knb.t* acted as courtiers. In Pap. Leningrad 1116B, ro. 2-3 we read that "they (*i.e.*, members of the *knb.t*) went out when they had enquired after the health (of Pharaoh) according to their daily custom." They also supervised the collection of taxes and their delivery to the proper quarter².

Thus the function of a *knb.t* was considerably wider than that of a law-court³. On this account the word must not be translated by "court"; the correct translation will be "chamber" or "council." Probably the Egyptian scribes understood the word *knb.t* in precisely this way and added the expression *šdmw*⁴ to emphasize the fact that the chamber in question was not an ordinary "chamber" but was acting as a court.

On this account only *knb.t šdmw* can be translated as "court."

¹ This had already been remarked on by Spiegelberg, *op. cit.*, 59.

² *Urkunden d. XVIII Dyn.*, 1125, 7; 1125, 15; 1126, 14, etc.

³ The function and character of the *knb.t* I hope to examine in a special work.

⁴ For *šdmw* with the meaning of "judges" see *Rec. trav.*, XXVIII, 171-173.



Ivory figure of a king from Abydos, B.M. 37996.
Actual size.

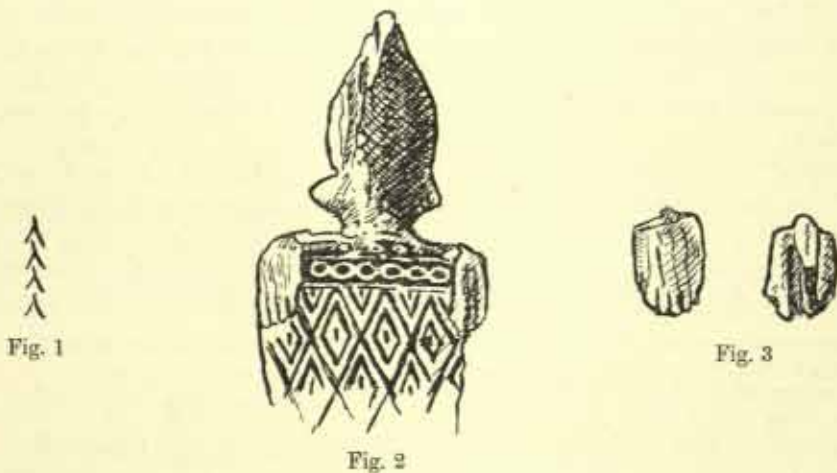
AN ARCHAIC STATUETTE FROM ABYDOS

BY S. R. K. GLANVILLE

With Plate ix.

The well-known archaic ivory figure of a king¹, B.M. 37996, has recently been cleaned and repaired by Dr. H. J. Plenderleith, of the British Museum Laboratory, and the great improvement that has resulted in the appearance of the figure demands the publication of new photographs and a word of comment (Pl. ix).

The dislocated left shoulder has been replaced; the design of the woven robe can be traced over almost its entire surface², and even round to the inside of the hem in front where it falls from the right arm—the design here is a kind of cross-stitch (Fig. 1); and ornaments(?) having the appearance of epaulettes are discovered to be superimposed on the robe at the shoulders, but rather more to the back than to the front (Fig. 2). These



are plain, but the lower edge of the better preserved one (on the left shoulder) looks as if it were fringed—though this is perhaps due to the generally fissured condition of the ivory; and they were apparently kept in position by a knob or button at the top (Fig. 3). Finally the excellent modelling of the figure inside its close-fitting, but thick, woollen garment can now be appreciated, and the elderly look of the face vanishes with the sand which largely concealed it.

¹ Petrie, *Abydos*, II, 24, and Pls. ii, xiii; cf. Schaefer-Andrae, *Die Kunst des Alten Orients*, 177; Curtius, *Antike Kunst*, 64. Height $3\frac{1}{2}$ ins. (8.8 cms.).

² It must of course be compared with the typical woven hangings used as decoration for houses in the Old Kingdom.

That look was enhanced by the apparently bowed shoulders—an effect which was exaggerated by the dislocated shoulder and by the dirt adhering to the back of the figure, and which is still slightly exaggerated by the ridge which marks the thick edge of the garment along the line of the shoulders. The real explanation of the position of the head (no longer stooping, but still a little thrust forward) is to be sought in the action expressed by the figure. The stumps which remain show that the legs were set well apart, not as in the conventional Egyptian standing figure of later times—that type, so far as we can tell from existing material, was not yet evolved in plastic art—but rather as in a man striding forward; and the slope of the legs from the thigh to the knee, clearly indicated beneath the garment, bears out this interpretation. The head, then, is thrown forward as in the stride of a man hastening, or approaching with some deliberateness a known objective.

And now the cope-like effect of the ridge across the shoulders gives the clue to the purpose of this striding king, for it recalls the peculiar dress worn by the pharaoh at the *Sed*-festival¹, and particularly the figure of a king (of the archaic period) in the same attitude as the B.M. ivory on a limestone relief at Cairo, published by Borchardt². Here, as in the Sahurê relief and the ivory, the king wears the heavy, sleeveless cloak, the edge of which falls in a straight line from the wrists, where the hands emerge to hold the Λ and Γ (not yet \dagger)³. Before cleaning it was impossible to say what exactly was the position of the arms of the ivory figure. Now the line of the right fore-arm can be clearly seen to cross the body at a higher point than does the left, and the almost entirely destroyed hands to have been placed, closely shut as if grasping two small objects, the right above the left. That is precisely the position of the hands in each of the reliefs quoted⁴. There can be little doubt that the ivory figure also grasped the Λ and Γ —probably made of metal. Again, the white crown of the ivory is matched in the Cairo relief (the uræus absent in both cases as is to be expected at this period⁵), although Sahurê wears the red. So far as one can see the ivory king never had a beard, unless that too was of metal. The omission may be excused on account of the material of which he is made. There seems reason to believe therefore that we may recognize in the Abydos figure the model of a First or Second Dynasty pharaoh, not necessarily aged, and certainly not decrepit, striding forward in the act of officiating at his *Sed*-festival⁶.

¹ Borchardt, *Grabdenkmal des Sahurê*, II, Pl. 45.

² *Ann. Serv.*, XXVIII, 43 ff., with Pl. I.

³ In Sahurê the crook is lost.

⁴ A position distinct from that of the ordinary royal or Osiride figure holding these insignia close to the chest, where the hands, whether crossed or not, are at an equal height from the ground.






⁵ Borchardt, in *Ann. Serv.*, *ibid.*; for the evidence for confining the date of the ivory to the First and Second Dynasties, see Petrie, *op. cit.*, 23.




⁶ On commemorative figures of the king performing rites at various festivals see Matthiew in *Journal*, XVI, 32.

NÂR-BA-THAI

By VLADIMIR VIKENTIEV

I. Nâr-Mertha or Nâr-Ba-Thai?

The name of the king who was probably the founder of the Egyptian monarchy is usually pronounced *Nâr-Mer*; it was generally written by two signs, those of the fish  and the chisel . The first sign represents a variety of the species *Silurus*, either *Heterobranchus longifilis* or *bidorsalis*, as on the palette and the mace-head from Hieraconpolis¹, or *Clarias anguillaris* Linne, as on the cylinder-seal from Hieraconpolis². These two varieties seem to have been confused in ancient days and known under the common name of  or  which properly belongs to the second variety (*Clarias*), the *ḳarmût*. It has been suggested, indeed, that the first element of the king's name represents a *Synodonthis* Schall³; but I can find in no instance the narrow prickly fins and forked tail which are characteristic of that variety and explain (the fins) its name , "the prickly fish⁴." The suggested reading *whr* for the first element of our king's name is therefore to be rejected, and we must keep to the reading *n'r* or *n'rw*.

The second sign  is usually read *mr*. This reading requires revision. The sign is known in many variants (Fig. 1), all representing an asymmetrical chisel more or less simplified and sometimes looking like . From these variants must be distinguished the sign of the wedge properly so-called, used either alone or as the blade of the chisel. The wedge  is a stake or a pointed stick of length varying from a few inches to several feet, and made of wood, bone, ivory or flint. Its technical uses were numerous; it was used as an implement of husbandry and handicraft, as a weapon of attack and destruction, as a mooring-pole, etc.

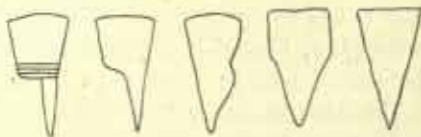




Fig. 1


Even on the most archaic monuments we find no representation of a pointed stick used for ploughing, but it is obvious that in the beginning the ground must have been tilled with it. It was used likewise for ploughing furrows during the foundation ceremony. Later it was attached to a handle, and thus arose the hand-hoe of shape . For technical reasons the pointed stick was now curved, and, in order to fasten it more firmly to the handle, it was attached not only at the end but also in the middle. Thus was obtained the implement .

A similar development was undergone by the pointed stick used as an instrument of handicraft. The simplest chisel was a wedge without any handle, made, according to the use for which it was intended, of wood, bone or flint. In the tomb of King Zer was found

¹ Gaillard, *Recherches sur les poissons*, etc., 57-60; cf. P. Montet, *Les poissons employés dans l'écriture hiéroglyphique*, *Bull. Inst. fr. Arch. Or.*, XI, 44-5.

² Gaillard, *op. cit.*, 50-6.

³ Gaillard, *op. cit.*, 67-70; cf. Montet, *op. cit.*, 45.

⁴ This variety was confounded, too, with *Clarias*. Hence the writing  with the *Synodonthis* as determinative (*Wb. d. aeg. Spr.*, II, 209).

a wedge of ivory (Fig. 2) which bears its name¹, written simply with the figure of the wedge itself ∇ , thus proving the use of the wedge alone without any handle. It shows, too, that it was sometimes four-sided.

The wedge used as a tool was, however, more efficacious when joined to a handle. At first, when the wedge was made of bone, ivory or flint, its blunt end was fitted into a lateral groove in the lower part of the piece of wood intended for the handle, and further secured by a binding of string. The instrument made in this way was the characteristic asymmetrical chisel of the beginning of the First Dynasty (Fig. 3).

With the appearance of the copper blade the form of the tool changed. The blade was now forced into the centre of the handle, and the binding became unnecessary. From the time of Semerkhet we have a symmetrical form (Fig. 4) differing in no essential from those found later².



Fig. 2



Fig. 3



Fig. 4

In one case (Tarkhân) the chisel-sign is replaced in the king's name by a hoe \searrow ³. Both signs have the phonetic value *mr*. But is it their only common spelling? The sign \searrow has many pronunciations, which can be divided into two groups, one giving its name (*hnn*, "hand-hoe") and the other its function. We are concerned here only with the second group; these are *rd*, *skt*, *hbs*, *hbt*, *bt*. The last deserves our special attention.

Besides meaning "to break into pieces" or "to make light the ground" the verb \searrow *bt* also signifies "to lay the foundation," and this because during the ceremony furrows were made in the ground. We find the same verb used as a military term for "to destroy" or "to waste" a country⁴, or "to demolish" a fortress. This use differs in no way from the agricultural, except that it is metaphorical.

The hoe held by the Scorpion king on the great mace-head from Hierakonpolis⁵ is being used to lay a foundation. Its destructive use is seen on a slate palette⁶ where it is employed by various totemic animals to demolish fortresses. Its meaning on the Palermo Stone is doubtful⁷.

We noted above that, on a clay jar from Tarkhân, the sign \searrow replaces in the name of our king the usual sign of the chisel ∇ . How is it to be pronounced here? As we have seen, the value *mr* is far from being its only one, and although it is consecrated by tradition we must confess that it is the least suitable for an epithet of a king known to have been an indefatigable conqueror and builder. Can we not find another phonetic value for \searrow which would also fit the sign ∇ with which the second element of the name is generally written?

¹ Petrie, *Royal Tombs*, II, extra plates, V A, 14.

² Petrie, *Researches in Sinai*, Pl. xlvii.



³ E.g., Inscription of Una, l. 23.



⁴ De Morgan, *Recherches sur les origines de l'Égypte*, II, Pl. iii.



⁵ Palermo Stone, recto, l. 4, No. 8; cf. Setha, *Beiträge*, 63.








⁶ Petrie, *Tarkhân*, II, Pl. vi, n 3.







⁷ Quibell, *Hierakonpolis*, I, Pl. xxvi c, 4.


May not the required value be *bj*? This is known to be a possible pronunciation of ; let us see if it can also be applied to .

The asymmetrical chisel, as we saw above, has a sharp blade and a broad handle. The former, which is really a wedge or a pointed stick of small size, is the essential element. We know that it was at first used without a handle, and that its use was not limited to the crafts. A large stake served in archaic Egypt for military purposes and during the foundation ceremony, and thus  often replaces  in the inscriptions of the First Dynasty¹. Used not for cutting or piercing, but for striking, we find the stake in the hands (*sic*) of the *ntr*-fish which personifies our king upon an ivory cylinder-seal from Hierakonpolis² (Fig. 5, p. 74).



Thus the functions of  and  were in many cases identical, and it seems reasonable to ascribe to the latter, by analogy with the former, the "function"-value *bj*. This can be corroborated by philological evidence.

The sign of the wedge or chisel was read in later days as *jb*. The reason for this is still unknown³. I suggest that we have here a phonetic metathesis and that the original value was *bj*. A similar change happened in the case of the word "leopard" or "panther," anciently pronounced *bj* and later *jb* or *jbj*. This metathesis must have happened at the very beginning of the dynastic period, and therefore we cannot expect to find the archaic value *bj* phonetically written. As was usual at that time we always find the second element in the king's name written by a single word-sign ; so too when the chisel  and the wedge  are to be pronounced *mr*, either in a royal name (*Semerkhet*  ) or in a title ( *šmr*)⁴. The need of a phonetic complement began to be felt only when the spelling *bj* was changed into *jb*, whence the writing ⁵.

The verb  *jb* in the sense of "to break" or "to make light the ground" is, of course, unknown, for the stake  very early ceased to be used as an instrument of husbandry, being replaced by the hand-hoe . We know only the verb *jb*, "to brand," determined by the sign of fire or by a flint knife , an object recalling the point of the archaic chisel. The same word   designates the instrument for branding, made, of course, originally of flint.

Besides being used for breaking, etc., the wedge, either alone or fastened to a handle, was employed in the archaic epoch for boring holes, an action expressed by the kindred word *wbj*. But with the appearance of metal the wedge ceased to be used for this purpose, which was accomplished by a special instrument .

The root *bj* is not preserved in the name of the pointed stick (stake, blade, etc.), used in handicraft, but we find it in a few kindred words. Sticks are made from shrubs, and these are called *bjt*. The pole used during the foundation ceremony was called *n-bjt*, a word which seems to be a derivative from the verb *bj*, "to lay the foundation." There are also many words denoting the result of the action *bj*, "to destroy," "to make a hole," such as *bj*, "bald place," *bjt*, "serpent hole," *bjbj*, "hollow," etc.

It thus seems to me that the second element of our royal name, represented either by an archaic chisel  or by a flint wedge , is to be read *bj*. The name usually read


¹ *Palermo Stone*, recto, l. 3, No. 10; Petrie, *Royal Tombs*, II, Pl. xi, 1. In *R.T.*, II, Pl. v, 2 the sign certainly means either "foundation" or "destruction" of the fortress (T). Cf. Sethe, *Untersuchungen*, III, 63. The reading proposed by Petrie, "the commander of Zer's palace" (*R.T.*, II, 22), is to be rejected for palaeographical reasons.

² Quibell, *Hierakonpolis*, I, Pl. xv, 7.



⁴ Petrie, *Royal Tombs*, I, Pls. xxxi, 43, xxxii, 6.




³ Gardiner, *Eg. Gramm.*, § 503, U 23.

⁵ Petrie, *op. cit.*, I, Pl. xxxi, 41.

Nâr-Mer is therefore rather to be pronounced Nâr-Ba. Thanks to a happy chance we know that this was not its full form, and that a third element, represented by the sign , is to be added¹. Thus the full name of the founder of the Egyptian monarchy was Nâr-Ba-Thai.

We may regard it as certain that the Horus-name of our king consisted only of the first element Nâr. The two other elements, Ba and Thai, seem to be personal names or epithets, but from no monument do we learn whether they were the *n-sw-t-blt-* or *nbty-* names. They may have had a double meaning; in reference to his enemies the king was characterized as a "destroyer" (*bt*) and "capturer" (*tst*); for his subjects he was "founder" (*bt*) and "male" (*tst*)².

So far as we can judge from his monuments, the name of our king consisted usually of the single element Ba. As in the case of other archaic kings (Sekhemab, Khasekhemui), this is to be found sometimes within the *serekh* and sometimes without. On several sealings we find the sign  (or ) repeated many times under the *serekh*, or rather a row of *serekhs*, as if with the desire of giving it an emphatic sense³.

When the power of Nâr-Ba-Thai was firmly established, and when in times of peaceful leisure a taste for speculation arose, it may have become customary in palace circles to pronounce the second element as *mn*; the tendency of the sign  towards simplification, and its confusion, especially on sealings, with the sign , standing for *mn*, "a stake," would favour the change. In a few cases it seems to be written phonetically ⁴. Petrie is quite definite when he says: "The *men* sign accompanying the name Nâr on sealings 93, *R.T.*, II, xiii.....suggests, what the position of the name in the succession shows, that Nâr-mertha was Mena⁵." I do not, however, consider this identification as firmly established, and accept it only as a suggestion.

The title "Mena," meaning "pilot" (of the state ship)⁶, if it was applied to our king, was too scholastic to enter into general use and to be preserved by popular memory; it passed into the official annals of later kings, who considered themselves his successors. The imagination of the common people was certainly much more impressed by the double name Ba-Thai, "Destroyer-Capturer." Such an eminent figure as that of the founder of the United Kingdom could not vanish without leaving traces in Egyptian folklore. Ba-Thai must surely have place among other legendary heroes, such as Cheops, Sesostri, Sakenenrê and Petubastis.

A priori it is reasonable to look for a story or legend dealing with our king in an epoch when there was a revival of interest in the memory of the First Dynasty kings. We know from the layers of potsherds at Umm el-Ka'âb that this happened in the Nineteenth Dynasty; during the same period Seti I composed the Abydos list of his predecessors headed by Menes.

Among the tales and legends of that period are two compositions which possibly contain popular versions of the career of our king, Papyrus d'Orbiney, with the "Tale of the Two Brothers" and the Edinburgh Ostrakon with a fragment of a "Hymn to the Chariot of Pharaoh."

Papyrus d'Orbiney has been fully studied, and practically all its salient features have been thoroughly analysed. We now realize its ancient and very primitive basis, as well

¹ Petrie, *Tarkhan*, I, Pl. II, 2 and p. 21.

² *V. infra*, p. 73.

³ Petrie, *Royal Tombs*, II, Pl. xiii, 91-2.

⁴ Petrie, *op. cit.*, II, Pl. xiii, 93 and pp. 51-2.

⁵ Petrie, *Tarkhan*, I, 21.

⁶ Erman (*Ä.Z.*, xxx, 46) considers *mn*, *mai* to be 3rd masc. sing. pseudo-participle, and translates it: "the one remaining," i.e., "permanent ruler," a title no less artificial than "The Pilot."

as the Late Egyptian stratum, cultural and linguistic, which has accumulated over it, and the numerous mythological allusions, true and imaginary, which even induced Virey to consider it to be a purely mythological story¹.

Of the results of previous research work I here insist on two points only: first, Lyenyen and other folklorists have proved that the tale combines several independent motifs; secondly, it has a compositional unity obvious, among other things, from the regular scheme of its refrains. This has been established by myself² and can be expressed by the formula

$$b a a b a - b b b b b - b a a b a - b b b b b b^3$$

simplified in its turn into the sequence


$$m - n - m - n.$$

These two points clearly show that the tale is not a purely popular composition, but a collection of several popular subjects worked through and skilfully amalgamated by an able scribe, Ennana or another. They admirably prove what Erman has said about Egyptian tales in general: "die ja, wie überall, auf den Anschauungen der unteren Stände beruhen werden, wenn es auch gebildete Leute sind, die sie uns überliefert haben⁴."

Although the mythological view of our tale prevails, few scholars have failed to recognize in it the presence of an undeniably historical element. Gardiner writes: "The story ends with the accession of Bata to the throne of Egypt. It is hardly likely that an Egyptian storyteller would thus add a new king to the crowded ranks of the Pharaohs without some warrant from legendary history⁵." I would go further, and say that the hero of our tale is not the imaginary Lybian king Bates, or a legendary king Bytis, or the first king of the Second Dynasty, Buzau, as suggested by different scholars, but the very founder of the Egyptian monarchy.

The fundamental historical element in the tale has been rendered almost unintelligible by other subjects. Moreover, it came to the compiler in a popular and fantastic version; it would therefore be highly imprudent to regard the story of Ba-Ta as a more or less true account of the career of King Ba-Thai. We must not forget that as presented to us by Ennana it is a real fairy tale, where it is extremely difficult to discern legendary history from pure fiction. All I venture to do is to draw attention to a few points in the tale which seem to cast a dim light on certain periods of the life of our king, otherwise completely unknown.

II. The hero of Papyrus d'Orbiney and his relation to the *ncr*-fish.

The name , Ba-Ta, is known only from Papyrus d'Orbiney and the Edinburgh Ostrakon. In both cases it shows a late writing⁶. We have here certainly to deal with a popular etymology; and it would not be difficult to suggest words with which this

¹ Virey, *Religion*, 193 sqq.

² V. Vikentiev, *Skazka o dvukh bratjah* (The Tale of the Two Brothers), with translation, commentaries and folkloristic parallels, Moscow, 1917, pp. 13-14. The letters *a* and *b* denote the two principal refrains of the tale: "Now, when the earth became bright and a new day came," and "Now, when many days had passed." There is a mistake in 12. 7, where *a* is to be replaced by *b*.

³ To be found in the lines: 1. 4 (*b*), 1. 8 (*a*), 2. 5, 6 (*a*), 2. 7, 8 (*b*), 7. 2 (*a*), 8. 8, 9 (*b*), 8. 9 to 9. 1 (*b*), 10. 4 (*b*), 11. 7, 8 (*b*), 12. 7 (*b*), 13. 6 (*a*), 14. 9 to 15. 1 (*a*), 15. 7 (*b*), 16. 6 (*a*), 17. 3 (*b*), 17. 8 (*b*), 18. 2 (*b*), 18. 6 (*b*), 19. 1 (*b*), 19. 2 (*b*).

⁴ Erman, *Die ägyptische Religion*, 80-1.

⁵ Gardiner, *The hero of the Papyrus d'Orbiney*, *P.S.B.A.*, xxvii, 185-6.

⁶ Erman, *Die Literatur der Ägypter*, 197, n. 3.

writing might be brought into connexion. Such are, for instance, *bst* (*Wb. d. aeg. Spr.*, 1, 416), a word which occurs in the offering-lists among various tree-products; *bitt* and *bity* (1, 417-8), epithets of Osiris and Amūn respectively; *bst* (1, 416), a "shrub" or "bush"; and lastly *bitt*, a part of a carriage, with which the name Ba-Ta is brought into relation in the hymn on the Edinburgh Ostrakon¹.

It is equally possible, however, to see in the name a corrupt writing of the ancient *Ḳs*. This becomes more certain when we take into consideration the relation of its owner to the *nṣr*-fish.

It has already been pointed out that the name Mena was too scholastic and aristocratic to pass into popular tradition. For a similar reason the name Nār had little chance of being faithfully preserved by popular memory; it was a clerical invention and of purely local importance (Mendes). But owing to the fact that, as totem of the king, the *nṣr*-fish played a prominent part in his glorious career, it is to be found in our tale, presented, of course, in a somewhat fantastic way. Side by side with it we find another natural object of the same name, the *nṣr*-tree, obscured, however, by the fact that the scribe replaced it by the *ṣ*-tree.

In the story Ba-Ta mutilates himself by cutting off his phallus and throwing it into the water. After this he becomes weak, and his elder brother cries aloud and deplores his inability to cross the water full of crocodiles in order to help him. All this corresponds well with the very rough and realistic style of the story, and is a proof of its popular origin. Ennana transmitted the scene to posterity as it was handed to him by the ignorant *vulgus*, guided rather by the Osirian legend than by the faint historical tradition concerning our king. The scene, as related in Ennana's version, is nothing other than a *mythological interpolation*. The statement that Ba-Ta "became weak" after the mutilation, unless the fit was of short duration, is clearly untrue, for what follows proves the contrary.

After one "mutilation" immediately follows another and more serious one. Ba-Ta takes his heart out of his breast and puts it on a tree². Yet the two operations, which I consider to be of a similar nature, result not in decreasing his energy but in redoubling it. Despite his loss he hunts daily from morn till eve, he annihilates alone a whole army, and he assumes the shape of the very personification of virile power, the bull. Is all this compatible with the powers of a *castrato*? Further, were the gods cruel enough to create for Ba-Ta a perpetual reminder of his infirmity in the person of the "daughter of Rēc"? And how could he love his wife "exceedingly"? All doubts disappear when we study the episode of the fecundation of the "favourite." This passage has not yet been correctly explained, and I take the opportunity of making a new suggestion concerning it.

What happens is as follows. From two drops of blood which fall from the neck of the slaughtered bull grow during the night two wonderful *persea*-trees. They are considered to be sacred and receive offerings from the people. One day the favourite learns that they are but a new transformation of her husband, whom she has tried repeatedly to annihilate, and she orders them to be cut down in her presence. This is done, but while she stands close by a *ḳd* (*w n ḳd*) flies off and enters into her mouth, and she at once conceives.

¹ See too Naville, *Le dieu Bat*, in *Ä.Z.*, XLIII, 77-83.

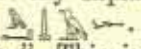



² The folklorists consider this topic as their incontestable property. Ba-Ta is a very extraordinary specimen of the "body without heart." In any case other conjectures concerning this episode of his life are not excluded.

The unknown word *ḥḏ* is generally translated "shaving" or "chip." This is a mere supposition and not a happy one. Shavings are to be found in a carpenter's shop, but not in a place where trees are being cut down. As for the translation "chip," the difficulty is that the princess swallows the object, and apparently without any effort. It must therefore be soft and small.

I believe we shall find a solution if we eliminate the word *ḥḏ* as non-existent and suppose that we have here a *lapsus calami*, as happens so often in Papyrus d'Orbiney.

I suggest that the archetype read , and that this was



erroneously copied as , the group *mr* being mistaken for

the very similar ligatured form of *nr*, and the *n* then detached to act as genitival exponent to an assumed noun *ḥḏ*. If my explanation is correct, the object which the princess swallows is not *ḥḏ* but *mḥ* . This I regard as a phonetic variant of the word  = *mḥ*, "genital organ." This is supported by the fact that these two words yield by metathesis  and , two variant forms of a root meaning "to copulate," "to fecundate." Compare, too, *ḥmw*, "generations." Thus it appears that the noun *mḥ* has something to do with procreation.

Now, what was the object in the mind of the compiler, or rather of the popular author who introduced the fecundation motif, when he used the word *mḥ*? Clearly a part of the tree itself. If it were a modern text it would be almost obvious that its author had in his mind the pollen, or a stamen of the *persea*-tree¹. But this is an ancient text and the acceptance of my suggestion requires the introduction of a new botanical term into the Egyptian vocabulary and the recognition of the fact that common people in ancient Egypt—unless the incident was a later interpolation—understood the rôle played by the stamens or the pollen in the life of plants. The question is of considerable interest and I hope our botanists will decide it.

For the present the episode may be conceived thus. The two *persea*-trees, sprung up in a night from the blood of the bull, appear in all their glory covered with blossoms. The *perseas* are violently shaken while being cut down, and a stamen flies away. The princess stands by, so absorbed in watching the chastisement inflicted by her upon her husband that she opens her mouth and the fertilizing particle enters it. To swallow a stamen was easy.

The vision of two splendid *persea*-trees covered with innumerable stamens, one of which could produce instantaneous pregnancy, is sufficient by itself alone to prove that neither the first nor the second "mutilation" of Ba-Ta diminished his forces. But if so, how can his cutting off his phallus be considered as a proof of his innocence? This is a pointless question, for the episode of the genital organ of Ba-Ta must be considered in a new light; there is nothing moral in it. Under the degenerate and gross form given to it by its popular author lies a faint reminiscence of an ancient totemic ceremony. By presenting symbolically his phallus to a tribal or personal totem—in this case the *nâr*-fish—a man increased his virility and preserved it from his enemies. By his action Ba-Ta ensured that he would never become impotent, and would thus remain a fit candidate for the king's throne. He thus became an ideal *ḥḏ*, "male²."

¹ The word "pollen" would have been determined by  rather than by .

² See above, p. 70.

The sacred fish of Mendes was the personification of power. By the assistance of the *nâr*-fish King Ba-Thai triumphed over his enemies. Note, for example, the scenes where the fish personifying the king smites the Lybians with a club (Fig. 5)¹; this is parallel to the annihilation of a whole army by the hero of Papyrus d'Orbiney in his valley.

Ba-Ta's dedication of his heart to the *nâr*-tree² and his phallus to the *nâr*-fish are to be compared with the well-known presentation of their names by the kings to their patron gods³; surely nobody will affirm that in consequence they became nameless.



Fig. 5

In conclusion, let us observe that in our tale the issue is somewhat confused by the fact that Ba-Ta implores his wife not to approach the stream, because, he says, "I shall not be able to save thee from it, for I am a woman like thee." Sethe has explained long ago that the strange assertion of our hero is due to a mistake quite natural in hieratic, and that the whole sentence is to be referred not to the man, but to the woman. It will run thus: "Thou wilt not be able to escape from it, because thou art but a woman⁴."

III. The Valley and the Tree of Ba-Ta.

The rôle of the totemic object *nâr* in our tale is not confined to the Mendesian sacred fish. In order to prove this it is necessary to study anew the passage dealing with the valley and the tree of Ba-Ta.

The story does not say exactly in what part of the country the two brothers lived, but thanks to the Edinburgh Ostrakon we know that their village or city (*dmt*) was situated in Middle Egypt. The elder brother is called Anubis, and all Egyptologists agree that his prototype was the jackal-god of the nome of Cynopolis. Its capital, Saka, had another lord, Bata by name. And this is the younger brother of our tale. Thus it is clear that the starting point of the two brothers was in the 17th Upper Egyptian nome.

From the events of the story we can guess that this was not their natal home, and that husbandry was perhaps not their original occupation. They were both acquainted with a region called "The Valley of the *Âsh*-tree," and the younger brother at least was a hunter rather than a husbandman. At any rate, in the Cynopolite village he was known chiefly as a skilful herdsman.

Where is the valley in which Ba-Ta takes refuge to be located? Lefebure⁵ and others place it to the north, in Syria. The northern direction appears to be the right one, but it is unnecessary to leave the country. Maspero suggested Elephantine⁶; he was mistaken as to the direction, but right when he said that the valley must have been situated on the Nile, or, as I should prefer to say, on a piece of water connected with the Nile.

If the valley lies to the north, the pursuit of Ba-Ta by Anubis takes place in the Cynopolite nome and perhaps continues in the next, that of Oxyrhynchus. These two provinces formed in ancient days a single region, controlled by the god Seth. It was the

¹ Quibell, *Hierakonpolis*, I, Pl. xv, 7. Our figure is taken from A. Moret—G. Davy, *Des clans aux empires*, 163.

² *V. infra*, p. 76.

³ See *Journal*, xvi, 31-2.






⁴ Sethe, *A.Z.*, xxix, 124.

⁵ Lefebure, *Œuvres diverses*, I, 163.

⁶ Maspero, *Contes populaires* (iv éd.), 9, n. 1.

scene of the decisive battle fought by the god of light with the Typhonic god of darkness¹. It is possible to find in our story a few parallels to this famous struggle; but even if they are true and not accidental, like the pseudo-Osirian aspect of the episode of the phallus of Ba-Ta, they are later mythological additions and need not detain us.

The name of the valley is associated with a certain tree called Âsh. What is this? A cedar, or another coniferous tree, a pine, a fir? Or an acacia, an oleander, a pomegranate? All these and still more have been proposed, and to this day there is no general agreement as to what tree gave its name to the valley of Ba-Ta.

When we try to define the word  it is necessary to remember that under this name was known not a special kind of tree, but many² which had only one characteristic in common, that of providing more or less good timber. For that reason the cedar was the *âsh-tree par excellence*, and as such it was called *es mîr*, "true *âsh*." An *âsh-tree* determined by the sign of a pod ,  was probably the African acacia (*Acacia Seyal*); but it was sometimes confused with other kinds³ of *âsh-tree*. The determinative , given to the name of our tree in the Papyrus d'Orbiney and replaced in certain texts by the sign of the leg-bone , can be taken only as an indication that the corresponding tree had fragrant flowers or fruits.

Concerning the valley and the tree of Ba-Ta we know the following facts:

(a) The valley is well known to the two brothers. The journey thither needs no special preparation and can be done on foot. Life in the valley does not differ essentially from that in Egypt.








(b) Access to the valley is hindered by a "great water," which may be a lake, a river, or a canal.

(c) The tree of Ba-Ta has large flowers, or at least one large flower, in which it is possible to hide a human heart. Concealment would be most efficacious if the flower were of a pink colour. Neither the cedar nor the pine of Lebanon nor the acacia fulfils these conditions.

On the other hand, all the conditions are perfectly fulfilled by the Heracleopolitan nome and its sacred tree.

(a) This nome is situated immediately to the north of the region of Cynopolis and Oxyrhynchus.

(b) It is separated from the latter by a Nile-branch, and was known until Roman days under the name of "The Island." The Heracleopolitan nome included the Fayyûm with its great lake, represented upon old sealings as full of crocodiles, like the "great water" in our story⁴.

(c) The sacred tree of the Heracleopolitan nome was represented with a flower or fruit on its side or top⁵. On archaic monuments the flower or fruit has the form , later that of . During the Fifth Dynasty we again find the shape , and the flower-stalk is replaced by an arm. In the Eighteenth Dynasty the hand was separated from the tree and holds the sign . The change from  to  (later ) is not purely graphic but has also a phonetic ground, for the fruit of the Heracleopolite tree was called *pṛt šn*, i.e., "hairy fruit."

¹ Naville, *Le mythe d'Horus*.

² See below, pp. 76-7.

³ Petrie, *Tarkhân*, I, 21-2 and Pl. II, 4.

⁴ P. Newberry in *Liverpool Annals*, v, 138-141.

⁵ H. Ducros in *Ann. Serv.*, XIV, 12.

⁶ Frazer in *Ann. Serv.*, III, 76.

⁷ P. Newberry in *A.Z.*, I, 78-9.

In religious texts the Heracleopolitan sacred tree was called *n̄r*. It was thought that it came into existence in order to lift up the soul of Osiris. We find in one text the following description of the god: "the soul of R̄r, his very body, residing in H̄enensu (Ahnas, Heracleopolis), whose praise is excellent in the *n̄rt*-tree which came into being in order to lift up his soul¹."

We have here a good parallel to our story, with only one difference: it is the heart and not the soul of the hero which is placed upon the tree. The reason for that is easy to understand. The heart for a living man is the same as the soul for a dead person, the centre of his vital forces. I cannot agree that the valley is to be looked for in the other world². Ba-Ta enjoys perfect health, and what happens to him when his heart falls to the ground is a temporary coma rather than real death.

The *n̄r*-tree had industrial uses. As such it was considered to be a kind of *āsh* and was called *ʕš n n̄r*, "*āsh* of the kind *n̄r*³," or, with the omission of the determining word, *āsh* simply. This abbreviated name for our tree occurs in Papyrus d'Orbiney, where it has been the source of sad misunderstanding concerning the valley and the tree of Ba-Ta.

From the *n̄r*-tree a fragrant oil was obtained, called *mr̄ht-n̄r*. It is sometimes determined by the sign of the fish, here a purely phonetic determinative, due to the fact that the *n̄r*-fish had exactly the same spelling as the *n̄r*-tree⁴. The oil was used for the preparation of *Kyphi*⁵. The fruit *p̄rt šn*, from which it was extracted, was used in gynaecology⁶.

That at least one kind of *āsh*-tree, precisely the one which interests us here, the *ʕš n n̄r*, grew in Egypt itself is proved by Papyrus Harris, 30. 5, where it is said that a sacred boat was built from *ʕš n n̄r tp hntš*, "*āsh*-tree of the kind *n̄r*, the best of the royal domain." In another text we read that a certain door in a temple was made of *ʕš n h̄isw̄t imntt nt̄l rn-f p̄rt-šn*, "*āsh*-tree of the western deserts, which is called 'the hairy fruit'⁷." The last example is doubly instructive, proving first that there existed an *āsh*-tree brought not from Syria but from Lybia, and secondly that the *n̄r*, otherwise called *p̄rt-šn*, was sometimes known by the name *ʕš*, without the determining words *n n̄r*. We can thus conclude that the Heracleopolitan sacred tree, the full name of which was *āsh-n̄r*, with abbreviated forms *n̄r* and *āsh* simply, was of Lybian origin. It was cultivated, too, in the country itself, probably on the western border of the Nile valley. It may be that its last halting place before it penetrated into Egypt proper was the Fayyūm, originally a Lybian oasis.

The Lybian origin of the Heracleopolitan sacred tree once being proved, we may deduce that its early worshippers were also possibly Lybians, and that Ba-Ta himself, who, seeking near it a refuge from the persecutions of his relatives, settled at Saka, may well have been of the same stock. This would explain why, having returned to his native valley, he immediately changes from a temporary herdsman and occasional land-tiller into an inveterate hunter.

¹ *Journal*, iv, Pl. xxvii and p. 127.

² Virey, *Religion*, 194; cf. Maspero, *Contes pop.*, 9, n. 1.

³ *Wb. d. aeg. Spr.*, II, 208 = *Pap. Harris*, 30. 5.

⁴ *Op. cit.*, II, 209.

⁵ V. Loret in *Journ. asiat.*, x, 95.

⁶ F. Griffith, *Kahun Papyri*, Pl. v, ll. 31, 41-2, 53.

⁷ H. Brugsch in *Ä.Z.*, XIII, 123.

V. Loret once proposed to identify the *nâr*-tree with *Nerium Oleandrum* L.¹ This has large pink flowers and a hairy fruit. It is to be found wild in North Africa, where it reaches a height of sixteen feet. The oil of a kindred tree, the *Laurus*, was believed by the ancient Greeks to give second sight². If we take into consideration the hairy aspect of oleander seeds, we shall perhaps understand how the tree could throw into the stream a tuft of hair after the wife of Ba-Ta had returned to her house. The possessive pronoun *st* following the word *šn* in this passage would then refer not to the woman, but to the *nâr*-tree, written sometimes as a feminine with the ending *t*. The penetrating odour of the oleander blossoms and not the perfume of the wife of Ba-Ta would then explain the episode of the clothes of the pharaoh and, if the Greeks got their belief from the Egyptians, the clairvoyance of the royal seers.

There are various objections to the identification with the oleander tree. Perhaps the most serious is that this cannot be considered good timber. But it may be that the use of the oleander for building purposes, in any case of rare occurrence, was due not to its industrial value, but to the mythological conception attached to it. A boat made of oleander wood was probably unfit for real navigation, and a door of the same wood would certainly not resist a serious attack, like one made of "true *âsh*," cedar or pine. Yet the essential was not this, but the fact that the soul of Osiris-Rê once resided in it.

Those who favour a native equivalent of the *âsh*-tree generally take it to be the acacia. Brugsch notes: "Cedars do not grow in the Lybian desert, but acacia-trees do³." Loret, who supposed the *âsh*-tree to be an oleander, also admitted that it might be a kind of acacia called *Mimosa*⁴. The same identification (acacia) we find in the recent translation of our tale by A. Erman.

Of course, the acacia is indigenous everywhere in the western oasis, as well as in the Nile valley, and it is sufficiently good timber. But all the other particularities of the acacia tell against its identification with the *nâr*-tree. A heart cannot be concealed in its flowers; their yellow colour would at once betray its presence. It is impossible to identify the acacia with the Heracleopolitan tree. Its seeds cannot be called "hairy"; Loret, it is true, compares the wisps of the *Mimosa* with "silky locks of hair⁵." But this is certainly a mere poetical comparison.

The identification of the tree of Ba-Ta with the sacred tree of the 20th and 21st Upper Egyptian nomes completely changes the aspect of the Tale of the Two Brothers, which must now be considered as of purely native origin. The principal episode of the heart put upon the *nâr*-tree was conceived in all probability in the Heracleopolitan nome; the kindred motive of the phallus given to the *nâr*-fish seems to be of Mendesian origin. The curious presence in our tale of two sacred objects of the same name and the equally important rôle played by both in the life of its hero may be no accidents, but may point to the existence of a certain syncretism of cult between the 20th and 21st Upper Egyptian and the 16th Lower Egyptian nomes.

As I have suggested, the valley of the *âsh-n-nâr*-tree is to be looked for in the Fayyûm. This oasis, belonging to the Heracleopolitan nome, may well have had among other names that of *ts int ps ts n ntr*, or in current speech *ts int* simply. For the neighbouring people this was really "The Valley" *par excellence*, and a man intending to go there could say "I go to the Valley," just as the Egyptian of the Empire said "I go

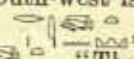
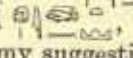
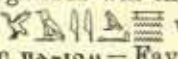
¹ V. Loret, *Sur l'arbre Narou*, *Rec. trav.*, xv, 102; cf. L. Keimer, *Gartenpflanzen*, I, 27-8, 91-2, 142, 186.

² *Nouveau Larousse*, v, 601 c.

³ *Ä.Z.*, xiii, 123.

⁴ V. Loret, *op. cit.*, 123-4.

⁵ *Ibid.*

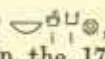
to the City," i.e., Thebes. A large valley leading to the Fayyûm from the south-west is now called *Rayan*, a name which may be derived from the old Egyptian , "Entrance to the Valley." A locality in the ancient Fayyûm was called , "The Beginning of the Valley¹." Further investigations will show whether my suggestion is right and whether it is possible to consider  which tried to take possession of the wife of Ba-Ta as a local name (Coptic $\eta\alpha-\iota\sigma\mu$ = Fayyûm).

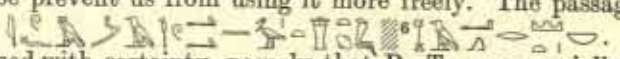
Assuming this change in the locality of our story and the existence in it of a certain Heracleopolitan element, it would be interesting to study to what extent the tale had been influenced by local cults. The feast of the god Harsaphes used to be inaugurated by the ceremony of ploughing. Is this the basis of the first episode of the Papyrus d'Orbiney? It was Khnum of Heracleopolis and not the chief god of Elephantine who created a wife for Ba-Ta. It is obvious from the tale that the Fayyûm was supposed by the Heracleopolitan people to be the starting point of the Ennead's tour of inspection in the Nile valley. And there are many similar questions to be studied by those concerned with Egyptian religion and mythology.

Conclusions.

I hazard in conclusion a sketch of the data regarding the career of Nâr-Ba-Thai presented to us by the historical documents on the one hand and by folklore and legend on the other. They cannot, of course, be regarded as worthy of full credit; but so little is known of the founder of the Egyptian monarchy that any new fact concerning him, even if it cannot be established beyond all possible doubt, is worthy of record.

1. Papyrus d'Orbiney depicts the future king Nâr-Ba-Thai as a modest farm-boy. The story of a humble man ascending the throne is a very common topic. It acquires a certain historical probability because side by side with Ba-Ta is mentioned his elder brother Anubis, who rather ought to be called his father. And as such, indeed, Ba-Ta himself treats him. That the jackal-god played an important rôle in the early dynastic epoch is well known. There was a special feast of his birth². His emblem accompanied the archaic kings, and Nâr-Ba-Thai in particular³. King Aha was called "the son (*msy*) of Anubis (Upuat, Amiut)⁴." We may then admit with a certain degree of probability that our king began his career under the authority of Anubis, god of Cynopolis, and in a modest rôle. Of course, his name was not yet Ba-Thai (Ba-Ta); this he acquired later by his arms.

2. The legend preserved on the Edinburgh Ostrakon calls him , "lord of Saka⁵." We may then suppose that Nâr-Ba-Thai passed his youth in the 17th Upper Egyptian nome and was there deified later on, side by side with the chief local god Anubis, his patron deity. The Cynopolite Ba-Ta was a purely local and popular deity.

3. The material afforded by the ostrakon may be of great historical importance, and we must regret that its laconism, its lexicographical ambiguities and the inaccuracies of the scribe prevent us from using it more freely. The passage referring to Ba-Ta runs as follows: . From this only one fact can be deduced with certainty, namely that Ba-Ta was specially connected with the goddess

¹ Brugsch, *A.Z.*, xxx, 75.


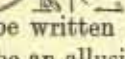
² *Palermo Stone*, verso, l. 1, No. 1.

³ Petrie, *Royal Tombs*, II, Pl. iii, 2=xi, 1.

⁴ Gardiner (*ibid.*) notes "A single sign lost, possibly an *m*."



⁵ Quibell, *Hierakonpolis*, I, Pls. xxvi B, xxix.



⁶ Gardiner, *op. cit.*, § 186.

Bast. The word  is rare (*Wb. d. aeg. Spr.*, II, 28), and we may suppose that it is here really to be written  and means "the marking of the rhythm by the hands." It may be an allusion to the processions going to Bubastis, about which we read in Herodotus, II, 60. The end of the sentence may contain an allusion to the campaigns of Ba-Tha; in any case there is a reference to foreign countries.

4. Thus we obtain a glimpse into the relation of Ba-Ta to the goddess Bast, to her feasts and sacred city. The presumed connexion of Nâr-Ba-Thai with the 18th Lower Egyptian nome seems to be indirectly corroborated by the fact that close to the nome of Bubastis on the north was that of Mendes with the cult of the *nâr*-fish, which plays such a prominent part in the life of our king.

5. Before reaching Bubastis and Mendes the king Nâr-Ba-Thai seems to have spent a certain time (at least 7 years) in the Heracleopolitan nome, perhaps in the Valley of the Fayyûm, which belonged to it. There, near the sacred *nâr*-tree, he annihilated the expeditionary force of an unknown Lower Egyptian(?) king. Later on he himself sustained a severe defeat, from which he recovered after a few years of inactivity, thanks to the help of the Cynopolite Anubis¹.

6. From archaeological evidence it is known that the temporary capital of Nâr-Ba-Thai, before the foundation of Memphis, was situated at Tarkhân, not far north of the Fayyûm. Among the objects found there by Petrie were two jars, similar in material, form and workmanship. Upon the one we read the name Nâr-Ba ; upon the other is the name ². The extremely archaic style of the *serekh* which contains the first sign, with its exceptionally curved upper lines, is exactly the same on both jars, and they seem to have been made almost simultaneously. It may be then that at a certain moment when our king resided at Tarkhân he was not yet called Nâr-Ba(-Thai), but *Hati-sek* or *Hati-hez*, meaning "The chief who annihilates, or injures (his enemies)." This must have been at the beginning of the Tarkhân period, when our king had not yet secured for himself the help of Mendes and its sacred fish.

7. The scenes carved upon the mace-head from Hieraconpolis seem to commemorate the victorious advance of Nâr-Ba-Thai to the north-west of the Mendesian nome, the control of which he must have gained previously. We see there the representation of a ceremony which looks like a *heb-sed*. The king is sitting in a high pavilion with the crown of Lower Egypt upon his head, while the protecting vulture-goddess of Upper Egypt, Nekhbet, is hovering over him. Before him we see a woman seated in a palanquin and above it an ox and a calf enclosed in the sign . A similar representation of an ox and a calf can be seen below, but there it is followed by figures and certainly refers to numbers of captured cattle. The figure of the ox and the calf above the woman may be the designation of the nome of Sebennyus. The sign  which encloses it is to be found in a somewhat similar connexion in the name of a fortress (?) of King Aha and seems to indicate a capture³. The seated woman may be then the captured royal princess of the 12th Lower Egyptian nome, the marriage with whom gave Nâr-Ba-Thai legal right to this territory, which he must have taken previously by force.

¹ Mythological texts mention a certain locality, or city of the *nâr*-tree; Sharp, *Eg. Inscript.*, First Series, 97, l. 8; *London Medical Papyrus*, XII, 8. Cf. Sethe, *Urgeschichte*, 49-50. A representation of the sacred *nâr*-tree, closely associated with the name of the king Nâr-Ba(-Thai), is perhaps to be found on a sealing from Tarkhân (*Tarkhân*, I, Pl. II, 1) supposed by Petrie to represent the name of a garden or plantation.

² Petrie, *Tarkhân*, II, Pl. VI, 2, 3 = Pl. XX, 1, 2.

³ Petrie, *Royal Tombs*, II, Pl. XI, 1.

8. The great slate palette seems to commemorate a still further advance of our king in a north-westerly direction and the capture of the very important centre of sea- and Nile-trade, the Harpoon Nome¹.

9. The conqueror now stood on the very border of Lybia, which he did not fail to invade. This seems to be proved by another slate palette in the Cairo Museum which we have strong reason for attributing to our king. On one side we see the wooded Lybia and its captured cattle, and on the other the destruction of several Lybian fortresses².

Such are the presumed stages of the rise and victories of a humble youth, whose original name is lost, and who, after he became king of Upper and Lower Egypt, assumed the glorious name of Nâr-Ba-Thai-Mena, who advanced from the city of Saka, where he was settled, through the Delta into the territory of Lybia, which he conquered, although it may actually have been his native country.

¹ Newberry in *Liverpool Annals*, I, 17-22; cf. *Journal*, XVI, 11. See, however, Sethe, *Urgeschichte*, 32, n. 3 and 63, where a different interpretation of the nome-sign is given.

² See p. 68, n. 6.

of a little temple, three views of which are shown in Pl. x. The escarpment is bedded on clays, and at its foot the scanty rainfall of the higher district to the south escapes here and there in a series of tiny springs at about the 90-metre level. The yield from the springs is to-day infinitesimal, and only after rain do the Arabs resort to them, but in a period of greater or more even rainfall, they may have been of economic importance. The presence of the temple in itself implies the previous occurrence of such a period, and the excavation of its floor yielded objects which permitted its identification with the initial centuries of the Christian era. The site is called El-Ḳuṣṣêr, the "little castle," by the local Aulad Ali bedouin¹.

The temple consisted of a single room 8 m. × 5 m. with doors to the east and west, and ten niches (for statuettes?) in the western half of the building.

Below the temple at the foot of the hill lie the capital and the drum of a column, but no evidence was found of columns having existed in the interior of the temple. The columns may have formed a portico.

The walls at the west end remain standing to a maximum height of 2.13 m. (that is the course above the niches) above the original floor of rough limestone slabs. Elsewhere the walls are about 1 metre high.

The walls of the temple had been plastered at two separate times in a design of red and black spaces surmounted by an ornamental design in green or black. The second plastering was a practical repetition of the first. A third plastering without ornament had been added later.

Among the objects found were the following: the lower half and the shoulder of a draped figure in Greek marble, about half life-size, and numerous portions of other figures; two heads of marble statuettes, one very battered and the other broken in half, and the fragments of a plaster ram, the emblem of Jupiter Ammon; the foot of a limestone statue with the inscription

ΙCΙΔΙ ΑΜΜΩΝΙΟC ΑΠΙ ΤΟC ΜΑΝ ΕΘΗΚΕ

These were dated approximately as of the second century A.D. by Prof. E. Breccia of Alexandria. Also two lamps, and an Alexandrian copper coin of Livia, wife of Augustus, dated M or MA (40 or 41 = A.D. 10-12)².

Much decayed wood was found, several acorns, and two small tree-trunks of cedar-wood³. These latter could hardly have grown there, since neither the Algerian cedar nor the cedar of Lebanon occurs naturally below 4000 feet, but the acorns seem to prove the former existence of some species of oak.

Two very faint demotic graffiti were uncovered on the plastering during the search for the missing portions of the statues. These were most unfortunately destroyed by the unexpectedly heavy rains of January 1930 before any expert could be brought to copy them.

During the excavations three skeletons were discovered well above the floor-level. All faced Mecca, and one had a white cloth covering his face. Nothing else was buried

¹ The site was discovered during the course of the topographical survey of the district. The room was filled with earth and the debris of the walls and roof to the average depth of a metre. Fragments of Greek marble showed the probable presence of statuary: to secure these for the Græco-Roman Museum at Alexandria and to forestall possible excavation by the Bedouins, I decided on the immediate clearance of the floor.

² Identified by Mr. G. C. Brooke of the British Museum.

³ Identified by Dr. A. B. Rendle of the Natural History Museum.



1

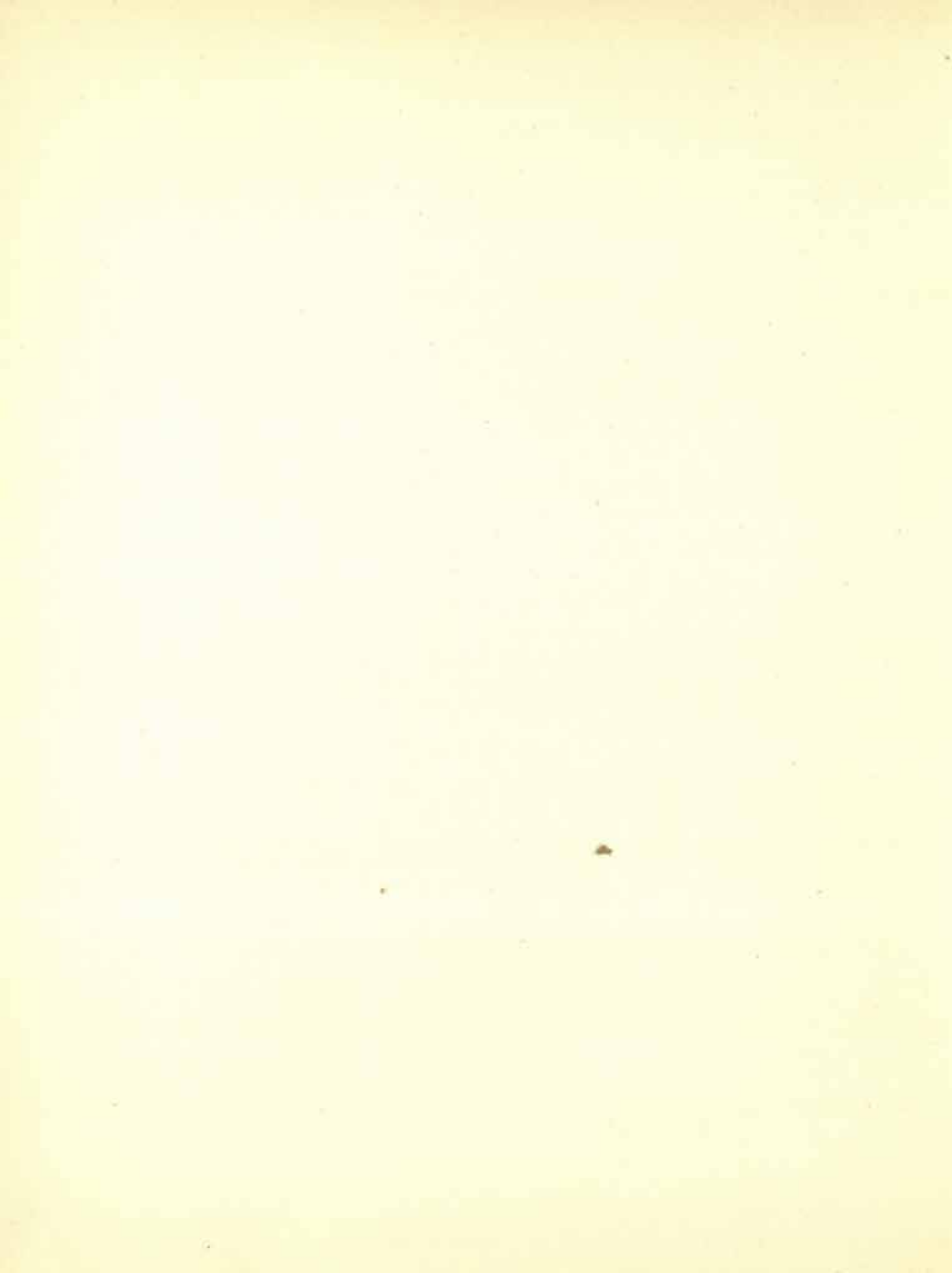


2



3

Temple in the Western Desert.
1 and 2. West end.
3. South-west corner.



with them. They appeared to be recent Muslim burials, and after their skull measurements had been taken they were re-interred outside the temple.

We possess a record of Alexandrian weather early in the second century made by Ptolemy the geographer. The exact year is unknown, but it probably falls within the period of his astronomical observations which were made A.D. 127-151¹.

	Rain	<i>Ψαδύ</i> (mist, drizzle)	Rain at present day ²
Jan.	4	1	11
Feb.	3	—	6
Mar.	—	1	5
Apr.	5	3	1
May	3	4	1
June	1	5	—
July	2	—	—
Aug.	—	—	—
Sept.	3	2	—
Oct.	4	—	1
Nov.	3	2	7
Dec.	2	2	10
Totals	30	20	42

The maximum number of rainy days during the period 1889-1922 was 65, the minimum 22. It would therefore appear that the total number of rainy days in the second century A.D. was much the same as at present, but that they were more evenly distributed throughout the year.

Various arguments have been used to account for the desiccation of the country west of Alexandria since the Ptolemaic-Roman period. Slight changes in level have taken place, but these would not affect the water-supply of the district in which the temple lies, while I attach even less weight to the theory that the introduction of the camel has de-forested North Africa. The goat is a far more dangerous animal to young shoots than the camel, and the goat has always been there. The rainfall of the district was always scanty or the ancients would not have been obliged to construct the wonderful system of rock-cut cisterns in which they preserved it. Incidentally there is one of these about 200 metres south of the temple.

The more even distribution of rainfall throughout the year and the more industrious nature of the ancients, who kept their cisterns in repair, seems to have permitted the settlement of places a good deal farther inland than the present narrow strip along the coast. The former prosperity is also attested by the large Christian site of Abumina, and the church at *Ḳasr Ḳitaji*, all well inland in sites without permanent water-supply.

The wood and stone objects found, though battered to pieces, were all well preserved by the fall of the roof. This suggests a violent end for the temple, and a possible date for this is suggested by the following passage:

".....in the following year [A.D. 116], while the greater part of the Eastern legions were away with the emperor, engaged in the Parthian war, there was a general revolt of the Jews in Egypt, Cyprus, and Cyrene, and to some extent also in Palestine and

¹ G. Hellmann, *Über die ägyptischen Witterungsangaben im Kalender von Claudius Ptolemäus* (Sitzungsber. d. Kgl. Preuss. Akad. d. Wiss., 1916, XIII).

² Mahmud Hamed, *The Climate of Alexandria* (Egyptian Physical Dept., Paper 19), Cairo, 1925.

Mesopotamia. They massacred all the Greeks who fell into their power, and succeeded in driving the rest into Alexandria, while they dominated the open country. The Greeks, besieged in Alexandria, retaliated by putting to death any Jews who had remained in the city; but they were unable to raise the siege until Marcius Turbo arrived with an army and fleet specially sent to suppress the rising in Egypt and Cyrene. Even then it needed a number of battles to break the spirit of the Jews, and the struggle went on for some months; but gradually all those of them who survived were driven into the desert, there to take up the profession of robbers¹."

All the objects found in the temple were sent to the Graeco-Roman Museum at Alexandria.

¹ J. Grafton Milne, *A History of Egypt under Roman Rule*, 1898, 52-53.

AN ABBREVIATED DEMOTIC BOOK OF THE DEAD

A PALAEOGRAPHICAL STUDY OF PAPYRUS
BRITISH MUSEUM 10072

By NATHANIEL JULIUS REICH

With Plate xi.

The privilege of publishing the following valuable papyrus I owe to the goodness of the late Dr. H. R. Hall, Keeper of Egyptian and Assyrian Antiquities in the British Museum, who not only in this case but always has been kind enough to further my research work as much as possible¹. I also wish to express my sincere appreciation of the kindness of his assistants, Messrs. S. R. K. Glanville and Alan W. Shorter, who also were very generous in facilitating in every way my work at the British Museum.

The text belongs to a class of religious literature which gradually replaces the old Book of the Dead, especially in the Ptolemaic and Roman periods. It may have once lain under the head of its mummy as is true of some of the other groups of the same class of literature, namely the "Books of Breathings"² or the book "Que mon nom fleurisse"³. There, in frequent instances, this request is written in Demotic upon the reverse of the papyrus, as for instance 22-f, "his head" (Pap. Cairo 58014, vs.)⁴; or it may just be expressed by the picture of the head as in Pap. Cairo 58017, vs.⁵. The last-mentioned "Book" instructs sometimes that it be placed under the feet of the corpse, as the demotic inscription 21-f, "his feet," upon Pap. Cairo 58013, vs. shows⁶; and the same indication is pictorially conveyed in Pap. Cairo 58022, vs. by a drawing of two legs⁷. Whether our Pap. Br. Mus. 10072 had anything to do with this book "May my Name flourish," I am not so sure, although the groups overlap, as the prayer for the preservation of the name⁸ is not mentioned at all in it.

Our papyrus, according to the ancient Egyptian belief, enabled the deceased to travel everywhere on earth⁹ and to visit every place as much as he desired, as did the

¹ See Reich, *Papyri jurist. Inhalts.....a. d. British Museum*, 53 ff.

² Cf. Paul Pierret, *Études égyptologiques...* (1873), I, 47 ff.

³ Collected by J. Lieblein, *Le livre égyptien que mon nom fleurisse* (1895).

⁴ W. Golénischeff, *Papyrus hiéroglyphes*, 1^{er} fasc., Cairo, 1927, 68.

⁵ *Op. cit.*, 74.

⁶ *Op. cit.*, 65.

⁷ *Op. cit.*, 92; see also Pap. Cairo 58018, vs., *op. cit.*, Pl. xviii, and p. 80.

⁸ E.g., the inscription upon the lid of a wooden coffin in Cairo, Pl. viii, of H. Brugsch, *Grammaire démotique*; or Pap. Dresden, *op. cit.*, Pl. x; perhaps also text upon the linen swaddle, Cairo 31175, Pl. cxiv, ed. Spiegelberg, 284-5, if the reading of the damaged word as *mn* (l. 5) is correct; cf., too, the texts upon the mummy tickets, e.g., nos. 9 and 14 of the Vienna collection, the numbers 1, 3, 12, 27, 46 of Berlin, or Forrer 2, 28, 30, 36 in Strasbourg.

⁹ E. v. Bergmann, *Buch vom Durchwandeln der Ewigkeit* (1877); H. Brugsch *Šai en šai*, etc. (1851); P. J. Horrack, *Livre des respirations...* (1877), etc.

"Book of Traversing Eternity." But one thing cannot be doubted, namely that our papyrus was to be used by the deceased as a *vade-mecum* in the other life like the larger Books of the Dead of the same period¹.

The manuscript was probably not intended to serve as an identification tag, as were the majority of the mummy tickets, although some of the formulae in it are very similar to these². Although the two groups³ overlap in some respects I think we should make a distinction between them as far as is possible. No comprehensive study has yet been made of these matters.

In spite of all that has been said above, there is, no doubt, a striking similarity between our papyrus of the British Museum and the mummy tickets in the whole make-up of the text, especially in the introduction and in the conclusion⁴. It may therefore be useful to state the differences between these two groups of funerary texts. As stated above, the main purpose of the mummy tickets was to identify the bodies in the mortuary establishment where they were mummified. They also sometimes bore a notice indicating the person and the place to which they were to be shipped, and other similar notes. The pious formulae found on them give the impression of being merely funerary by-remarks; or they form, at the best, a combination of two types, *i.e.*, the relatives may have intended that the ticket, besides serving to identify the mummy, should also be made religiously useful for the dead in the other world; hence the religious formulae.

Thus the main purposes of these mummy labels apparently were to guard the dead body from being mistaken for another mummy, and similar practical ends, namely the care and preservation of the corpse by its relatives or their agents. In other words they served merely the living interested parties, the mourning survivors or their mandatories in this life, who were interested in the body of the departed; and they were not so much intended to be used by the deceased himself in the next world.

On the other hand, our papyrus was intended solely to enable the deceased to achieve, by its spell, the fulfilment of his wishes or desires for certain necessities or conveniences in the after-life. What those desires and ideals of the deceased were can be seen more clearly in our papyrus than in the larger Books of the Dead, for the poverty of the party which caused the abbreviation of the usually very elaborate text of the various kinds of the Book of the Dead forced the writer of our small papyrus leaf to condense or to select those wishes which were most desirable for the departed with respect to their supposed importance for the life to come. And this is precisely what makes this small text more important than some of the larger ones of its kind.

The texts most nearly related to it are the following:

¹ *E.g.*, the Papyrus Pamonthes, ed. Fr. Lexa; Papyrus Rhind in Edinburgh, ed. G. Möller; Papyrus Berlin 8351, ed. Spiegelberg, Pls. 83-86, etc.

² The fragility of the papyrus material speaks against its use as an identification tag, whereas the mummy tickets, being of wood, could very well be used for this purpose, and they, in fact, show in many instances the hole through which the string was passed. *Cf.* some of the pictures in G. Möller, *Mumien-schilder*; N. Reich, *Demotische und griechische Texte auf Mumientafeln* (1923, 2nd edition); W. Spiegelberg, *Aegypt. und griechische Eigennamen aus Mumienetiketten* (1901), etc.

³ To which several more of the same kind should be added; for example, some inscriptions in tombs, upon stelae, on sarcophagi, and the like.

⁴ The former is identical with some of the tickets (*cf.* l. 1 of our papyrus, below), the latter gives the name of the deceased, as often occurs in these mummy labels.

- (a) Pap. Cairo 31170 (11 lines)¹.
- (b) Pap. Cairo 31172 (8 lines)².
- (c) Cairo 31175, a linen mummy swaddle³ (does not precisely belong to our class but has a similar text).
- (d) Pap. Berlin 1522 (5 lines)⁴.
- (e) Pap. Berlin 3169 (7 lines)⁵.
- (f) Pap. Dresden (15 lines; and 1 line on the vs.)⁶.
- (g) A text upon a wooden coffin in Cairo⁷ (this text, too, belongs to another class, in spite of its kindred formula).

I have omitted intentionally Pap. Berlin 8351⁸ because, not being an "abbreviated" Book of the Dead, it does not come within our scope. The same holds of the "religious text 37," the Book of the Dead of the collection of papyri at Strasbourg⁹. The vast numbers of mummy tickets and similar texts, also, have been ignored for the reasons given above. Besides, a comparison of the last group will show that they do not aid us much in interpreting the abbreviated demotic Book of the Dead in the British Museum.

The papyrus bears the number 10072 in red ink, while upon the glass is a ticket inscribed (5.B.50) in black ink. Present height $3\frac{3}{4}$ inches; present length $6\frac{1}{2}$ inches; distance of the writing from the top about $1\frac{1}{2}$ inches, from the bottom nil, from the right 1 inch, from the left $\frac{3}{4}$ inch. The colour is light yellow. On the upper rim: "Presented by Sir Gardner Wilkinson." The papyrus is complete and consists of five lines. The script, in black ink, is very cursive, with misspellings, and therefore somewhat difficult. The ink in the third line and in a few other places is blurred, and this line is also slightly mutilated; most unfortunately, because it contains textual difficulties which may easily cause error and are, indeed, the reason why the text has been misinterpreted. Judging by the *ductus* of the script the papyrus is probably early Roman in date.

No facsimile has been published, so far as I know, nor has the papyrus ever been fully transcribed phonetically or palaeographically. An attempt has lately been made to interpret¹⁰ it, but I cannot wholly agree with this, especially in the vital parts of the

¹ Ed. Spiegelberg (old 18035), Pl. cxii, 280-1.

² *Op. cit.*, Pl. cxii, 282 (old 18028); see also his *Eigennamen*, 9 ff.

³ *Op. cit.*, Pl. cxiv, 284-5. The idea of writing the text upon the linen wrapping of the mummy itself instead of upon papyrus has probably no real significance. A papyrus scroll which is added to the corpse may get lost, but if it is written upon the "dress" of the mummy itself, the text, so necessary in the every-day life of the deceased, is always at hand. Spiegelberg also publishes, *op. cit.*, Pl. cxlii, 328 (=Cairo 50002), a papyrus which, however, is so fragmentary that even his heading "Religioeser Text" is doubtful. The same seems to be the case with the "religious text" of Cairo 30962 (p. 202; without picture). He mentions in this edition also the numbers: Cairo 31171 (p. 281), 31176 (p. 285). Each of the other above-mentioned pieces he calls "Liturgischer Text." There is still another fragment (Cairo 30957=p. 197; without reproduction) entitled "Später Totenbuchtext," and he quotes his *Eigennamen*, 9 ff.; but the text there seems to be the above quoted Cairo 31172.

⁴ Spiegelberg, *Demot. Papyrus...Berlin*, Pl. 84, p. 27.

⁵ *Op. cit.*, Pl. 86, p. 28 ("ähnlich wie 1522"); for both see also his *Eigennamen*, 9 ff. (the difficult lines 5 and 6, partly mutilated, being omitted).

⁶ Brugsch, *Grammaire démotique*, Pl. x.

⁷ *Op. cit.*, Pl. viii; cf. also for the two preceding, Spiegelberg, *Eigennamen*, 9 ff. See, too, n. 3 above.

⁸ Spiegelberg, *op. cit.*, Pls. 83-86, pp. 26-27.

⁹ *Id.*, *Demot. Pap. Strasbourg*, Pls. xi-xiv, 39-42, and Pl. ii, 50 respectively.

¹⁰ *Id.*, *Demotica*, I, 30-31. [Dr. Reich asks me to point out that this article was in print before Spiegelberg's lamented death. Ed.]

text. When I find that so able a scholar as Spiegelberg, dealing with a small papyrus of five lines, gives two versions for one of the lines, and queries almost every word of them, besides reading the name of the owner in a manner quite different from the way in which I should read it, I feel that there is not merely justification but a scientific necessity to undertake a very detailed palaeographical and orthographical study of our document.

My reading, based upon the photograph (Pl. xi, centre), was practically finished when I arrived in London a year ago. A comparison with the original in the British Museum merely confirmed the opinion which I had formed before. Pl. xi, bottom, is a hand-copy made in ink over a photograph in front of the original. Pl. xi, top, shows the transcription into hieroglyphs.

PHONETIC TRANSCRIPTION.

1. *nh pe-t by rpy-f*
2. *rh-f a nh z-t š-f a p*
3. *m̄ nt e Wsr n'm-f' r-f š 'y*
4. *h p t š z-t Ty-k*
5. *ta 'S-rš.*

TRANSLATION.

1. *Thy soul liveth, she rejuvenateth (herself),*
2. *she knoweth in eternity, for ever. She goeth to the*
3. *place where Osiris is; she goeth (and) cometh¹*
4. *upon the earth for ever: Tikos,*
5. *daughter of Eserashe.*

COMMENTARY.

Line 1.

nh. As for the transcription \equiv , the two little strokes which, in demotic as in hieratic², can represent almost anything, cause just the same trouble in both³. In our case there is not much doubt as to \equiv , for the two other possibilities here, 𐀀 and 𐀁 (*ee*), are out of the question, the former being only used in adjuration when *nh* stands for *ue*, while the latter would suggest some vowel at the end, which is not the case in our word.

With regard to 𐀂 (the sign for the god), which occurs in our text several times, Gardiner's proposed 𐀃 ⁴, based upon Schaefer's discovery⁵, though excellent for hieratic script would be out of place in demotic, because it would involve mentally transcribing every demotic text first into hieratic and then again into hieroglyphic, a procedure which should be avoided as far as possible. We want to reproduce⁶, not to tell the history, of a sign.

¹ *I.e.*, "moveth to and fro."

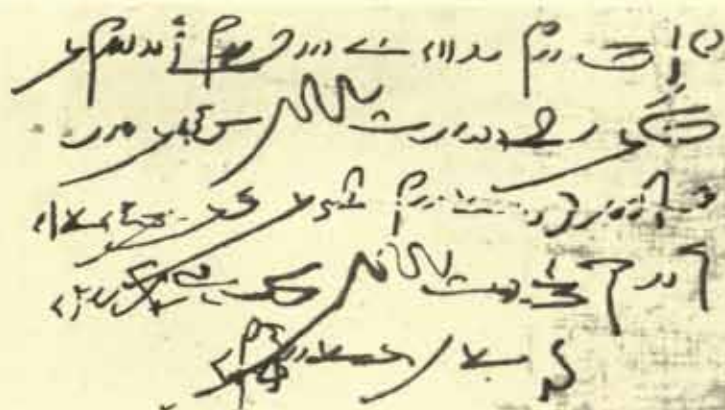
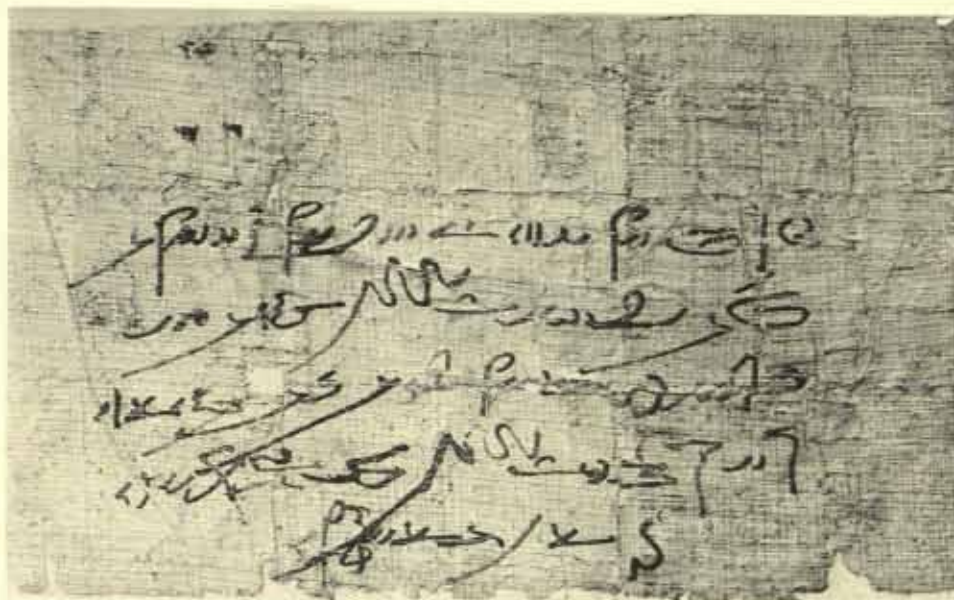
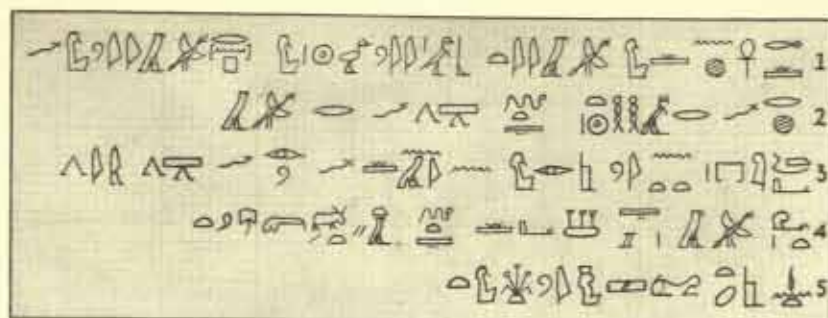
² See Gardiner's article on the transcription of the N.K. hieratic script—which applies only to some extent, *mutatis mutandis*, to the demotic—in *Journal*, xv, 48 ff.

³ See Sethe in *A.Z.*, LXII, 9 ff.

⁴ Gardiner, *op. cit.*, 51; cf. also on the subject Reich, *Wanderung, Rec. trav.*, xxx, 90 ff.






⁵ *A.Z.*, xi, 121 ff., and Reich, *Texte a. Mumientaf.*, 72, note 1.


⁶ *Journal*, xv, 49.





















Demotic Papyrus B.M. 10072.






Hieroglyphic transcription, original (scale c. 1/2), and ink tracing on photostat.

by. After the sign for  we have again the two strokes, which are sometimes combined also into one sign so as to look like the masculine definite article *p* (*pt*, , in hieratic). Here clearly written texts always show the picture   , *by*, "soul," where it can clearly be seen that the Egyptian intended to write the sun's disk with the one stroke.

rpy. The demotic sign seems to express the old *n* which was now no longer pronounced, and I have therefore transcribed it (,).





The following sign looks again like the two-strokes sign mentioned above, which I first suspected to be the representative of an old  in *rpy*, "to flourish," as can be seen again best in the Demotic Mag. Pap.   , *rpy*, or in the Demotic



Pap. Berlin 8351:              

, *rpy by-k 'r* (read: *r* for *a*) *nḥ z-t*, "Thy soul rejuvenateth in eternity for ever." The only reason I have preferred the transcription  is that the three strokes following it are apparently intended for the last phonetic sign *y* of the word and one would naturally expect the determinative  after the *y*. The writing of the two strokes  for  of the complex *rnp* would show that the scribe meant to write a *p* and not a *pt*.

Line 2.

rḥ. Without the determinative as in the majority of cases in demotic.

a nḥ. Pap. Rhind writes either , I, 8 h 5, etc., or , I, 11 h 2 (read *ehh?*), both with omission of *n*⁵, and the latter visibly influenced by hieroglyphic calligraphical rules, or , II, 6 h 6, *e nḥḥ* (our form), A. $\alpha\eta\eta\epsilon$: S.B.F. $\epsilon\eta\epsilon$. The writing in our papyrus is quite an interesting example of the history of the demotic sign for , *nḥ*, in the Ptolemaic and Roman periods, which I outlined twenty years ago⁶, giving all necessary instances.

z-t. This writing, peculiar to later religious texts, replaces the usual . The  is, therefore, to be regarded as a snake of a protecting nature. I would recall, among the many examples, the snake protecting the box containing the book of the god Thoth, in I Khamuas, III, 20 ff. This fanciful belief shows itself also in the script in the form of


the serpent. A good illustration is the , *z-t*, "for ever," of

the Demot. Pap. Berlin 8351⁷, mentioned above. Here the snake of the word *z-t* has three humps, while in the same word a few lines above (v. 2) it has only one. That this is not a mere accident can be seen from the sign for — beneath the snake; for this sign, in correspondence with the three humps of the snake, is in fact written *thrice*. Note, too, in the B.M. papyrus, the unusually long tail of the sign, which goes into the next line

⁵ *E.g.*, Griffith and Thompson, *Demotic Magical Papyrus of London and Leiden*, 2. 20, 7. 3, etc., and Vol. III, no. 249, p. 25. Coptic gloss $\beta\alpha\dot{\iota}$ and $\beta\alpha\epsilon\tau$, *ibidem*.

⁶ *Op. cit.*, 9.24 = Vol. III, no. 502, p. 52; cf. Hierat. Pap. Rhind, ed. Möller, I, 4 h 12, etc.

⁷ Spiegelberg, *Demot. Pap. Berlin*, Pl. 86, P 8351 D = col. v, l. 2.

⁸ Or is  meant?

⁹ For the reasons for expressing it sometimes see N. Reich, *Demot. u. griech. Texte a. Mumientaf.*, 50, notes 8, 9, 10.

¹⁰ *Op. cit.*, 47-51.

¹¹ Ed. Spiegelberg, Pl. 86, P 8351 D = col. v, l. 18 (last line).

Journ. of Egypt. Arch. xvii.

but one beneath, crossing various other signs, among them the end of \sim (f) in $'r-f$; altogether $1\frac{1}{2}$ inches long. The other snake, in line 4, again in the word for $z-t$, also crosses several signs in line 5. Both tails end with a hook or curve turning slightly up. This is a peculiarity of our scribe which, as will be seen below, is of importance for the interpretation of this document. Other examples of this curve at the end of downward-going signs are the sign for \sim (f) in $rp\gamma-f$ (l. 1), in $rh-f$ (l. 2), in $n'm-f$ and $'r-f$ (l. 3); both ends of the "cross" representing \sim (l. 4); and the long sign for \pm , r (l. 5).

This mannerism is usually caused by writing rapidly, and it suggests to the reader that this scribe did this kind of work so frequently that he could do it almost mechanically, without looking much at the papyrus. It is the flowing hand of an experienced scribe¹ who, however, did not object to cacography in this case, for it was only a short abbreviated Book of the Dead for a girl² whose relatives were unable to afford a more elaborate *vade-mecum* for the world to come.

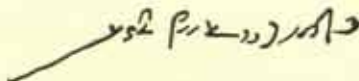
These curves at the end of a downward-written sign are caused by carelessly lifting the hand from the papyrus when the one sign is finished in order to begin the next; therefore we may properly assume that the scribe did the same thing when he put down his hand again to begin the next sign. And this is indeed the case. Thus the sign for n in the word $n'mf$ (l. 3) on the top became a curve instead of a straight horizontal line as it should have been. Similarly the two upper ends of the cross (mentioned above) representing \sim (l. 4) where he began the strokes have the curve in the opposite direction, as was to be expected. We shall see in l. 5 that there is another example of these "beginning curves" which is of importance for our document in that it identifies for us its owner.

§. The group is quite clear. Hieratic usually adds a complementary Δ , e.g., Pap. Rhind (ed. Möller), I, 6 h 9, etc.

$a p$. Also quite clear. The form for \ominus is not unusual, though written hastily. The same holds for the two strokes forming the masc. sing. definite article.

Line 3.

Here the trouble begins. The text is not much mutilated and can be reconstructed with certainty from the photograph alone; the comparison with the original completely confirmed my anticipation. I give here the reconstructed text of the troublesome passage:



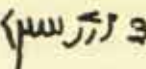
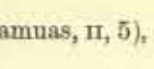
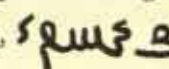
But before entering upon the discussion of my readings, it is my duty to show why Spiegelberg's interpretations of the passage are impossible (see below)³. First of all, in both his alternative versions (both qualified by him as "very doubtful") the sign for nb appears after the article pt . But I cannot find any nb at all, either at the end of l. 2 or at the beginning of l. 3. In fact, there is no space for it, unless Spiegelberg reads as

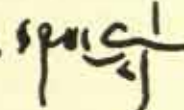
¹ There are no actual mistakes in the manuscript, although it has been written so rapidly.

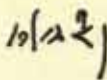
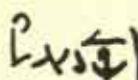
² If she had been married, probably the name of her husband would have been mentioned, as was done in many cases after a formula like this: X daughter of Y , wife of Z .

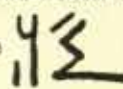

³ Spiegelberg, *Demotica*, I (S.B.A.W., 1925, Munich), 30-31. He translates (the question marks, etc. are his) *Sie geht zu (?) dem Herrn (?) der Wage (?) der Osiris heisst (?)* with a footnote: "Sehr zweifelhafte Lesung $\dot{im}=f r (?) pt (?) nb (?) mhj-t (?)$ (vgl. Pap. Rhind I, 7 d 9) $Wajr ru=f (?)$, möglicherweise auch $pt (?) nb (?) mutj (?)$. Die Photographie ist nicht ganz klar."

nb the first sign of l. 3, which is quite clearly an *m*. The first group in this line he proposes to read either *mḥj-t*, S. *maḥte*: A. *maḥte*: B. *maḥi*, "balance," or '*mntj*, S. *amūte*: B.F. *amenḥ*: A. *emūte*, "west" or "netherworld." Typical writings of *mḥj-t* are:

 (II Khamuas, II, 5),  (Rhind, I, 7 d 9),  (Pap. Insinger,

ed. Boeser, IV, 17),  (Pap. Insinger, ed. Lexa, v, 7); and of '*mntj*:



 (II Khamuas, II, 6), and  (Rhind, *passim*). These writings, which can easily be added to, bear very little resemblance to the group in our papyrus.


After the word for "Osiris," which causes no trouble, comes a word which Spiegelberg reads *rn*; yet I do not know of one single example in demotic where  is written without the determinative .

Spiegelberg's reading of this passage is thus impossible palaeographically. Grammatically, it would be possible, but the meaning of his translation is so unusual that he has to refer to Pap. Rhind, ed. Möller, I, 7 d 9, for his rendering of our passage with *nb mḥj-t Wsjr rn-f*, "the lord of the balance, Osiris is his name."

Now we always understood that it was *Thoth* who in the underworld had to do with the balance, and weighed "the evil deeds against the good deeds, Thoth, the great god writing, (and) Anubis giving word to his colleague¹." And indeed the passage of Pap. Rhind to which Spiegelberg refers runs (in the demotic): *ḥ-y m-bḥ Thot šš-y t-y yḥ ḥ-t-y m-bḥ p nb n t mḥj-t*, "I stand before Thoth, I prostrate myself (my body) before the lord of the balance²." In other words, the very passage on which Spiegelberg relies shows that his rendering of the phrase cannot be correct, for we cannot assume that an Egyptian scribe was so ignorant of his own mythology as to mix up Thoth and Osiris.

Thus, on all grounds, we must reject Spiegelberg's rendering, and we shall now see how I believe it must be read.

mṛ. The usual writing; the first sign (looking like a demotic *m*) is in reality the group transcribed ³. The second is the feather for *mṛ*, and the third the determinative of the house, S.B.A. *ma:me* and F. *moḥ*⁴, "place," corresponding to hieratic , as in Pap. Rhind⁵.

nt e. This (Coptic *ete*) introduces a relative sentence which here consists of an adverbial nominal sentence with prepositional predicate, the relative pronoun *nt e* relating to the preceding noun *mṛ*, which is determined by the article *p*, ⁶. The subject of this sentence, consequently, can be nothing but *Wsr*, "Osiris," S. *osripe*: B. *osipi*.

n'm-f. This group is quite common, and is only a little distorted in its top sign, representing the *n*, which should be a straight horizontal line above the group; certain

¹ *E.g.*, II Khamuas, ed. Griffith, II, 5 ff. = p. 153.

² See Möller, pp. 36-37, I, 7 d 9, and p. 73, no. 524.


³ Good instances in Griffith's *Rylands Papyri*, III, 352.

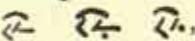


⁴ Spiegelberg, *Kopt. Handwb.*, 55.

⁵ Ed. Möller, p. 20*, no. 130.

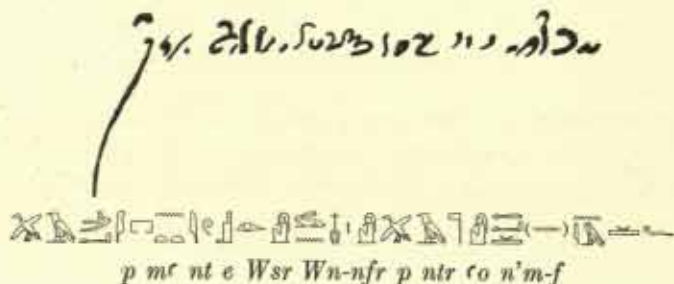
⁶ *Cf.* also Spiegelberg, *Demot. Gramm.*, § 537 ff.

scribes omit it altogether, others write it regularly, according to the different schools and times. Its distortion to a curve, which looks here like a circumflex, is not unusual. Its expression in writing (it is unnecessary since it is already there) developed as soon as its palaeographical origin (see above) had been forgotten, just as I have shown in the groups for *rn*, *hnp*, *knkn*, etc.¹ Consequently, this usage does not begin before the second Ptolemaic period. That our scribe should write it as a curve is quite intelligible if we bear in mind what we stated above about his hasty and rounded handwriting.


The group consists (if we leave out the suffix *f*), roughly drawn, of the following demotic signs: . The top sign has already been explained. What the others

are can be easily recognized if we give examples from a few larger papyri so far as they use the superfluous sign above: , I Khamuas² (Ptolemaic); , Magical Pap.³ (Roman); , II Khamuas⁴, *passim* (Roman). We see that the group consists of three signs: (a) The straight horizontal (or circumflex-like) line above the group. (b) At the left end of the group a curve going in the downward direction. (c) While (a) and (b) are in all groups alike, the sign on the right varies. It consists of a short slanting line, either accompanied by a dot or a small ring (it is clear that these two are identical, the small ring having become a dot), or connected with a horizontal line. And this last is the variation we have before us in B.M. 10072. That the downward curve on the left has a little tail or curve is once more the now familiar mannerism of our scribe.

So far the sentence can be read without any doubt and without any forced interpretation as follows: *š-f a p³ m^c nt e Wsr n'm-f*, "she (the soul) goes to the place where Osiris is" (*verbatim*: "at which Osiris is there"). The troublesome passage was probably pronounced (vocalized): *p^a ma e(n)te Usire 'mmof*, as we may conclude from the Coptic, where it would be: *ⲡⲙⲁ ⲉⲧⲉ ⲟⲩⲥⲓⲣⲉ ⲁⲙⲟⲩ*. We find the same sentence on a wooden coffin in the Cairo Museum:



"the place where Usire Wennofre (Οσϱιϱ Οννϱφϱιϱ), the great god, is⁵."

Pap. Rhind uses the same phrase in both (hierat. and demot.) versions (ed. Möller, I, 5 d 8 = I, 5 h 10): Demot.: *e p m^c nte n ntr-w nt htp n t Ty-t n'm-f*, "to the place where the gods who rest in the nether world are," Hierat.: , "to the place where the Qrty-gods are."

¹ Reich, *Texte*, 41 ff., 83 ff., etc.

² J. Krall, *Demot. Lesestücke*, I, *passim*.

³ Griffith and Thompson, *op. cit.*, III, 43, no. 428 (3).

⁴ Griffith, *Stories of the High Priests*, *passim*.

⁵ Brugsch, *Grammaire démotique*, Pl. viii, l. 4.

The scene in II Khamuas (II, 9-10) which takes place in the underworld shows us what is meant by the line of B.M. 10072. The departed one is seated near to *p m' nt e Wsr n'm-f*, "the place where Osiris is"; or again (II, 12-13), *rm p ntr nt šms Skr-Wsr e-f hn r p m' nt e Wsr n'm-f*, "a man of god that follows Sokaris Osiris, he being near to the place in which Osiris is." This phrase is used so frequently, not only in the religious literature, that it looks quite natural to us. Is it natural in reality? The answer to this question we may find in the Decree of Canopus if we compare the uses of this phrase there in the four different versions, two demotic, one hieroglyphic, and one Greek: *a p m' nt e-f n'm-f* (Tanis, l. 47, Kom el-Hisn, l. 13)¹, (The priest who every year came to the king) "to the place where he (Pharaoh) was": Hierogl.: "to the place where his majesty was"²; Greek: *παρὰ τῷ βασιλεῖ*. While the Egyptian text says: (They came) "to the place where the Pharaoh was," the Greek version expresses it by a simple *παρὰ τῷ βασιλεῖ*. Why does the demotic so frequently use the phrase: *p m' nt e Pr-ot n'm-f*, (They went) "to the place in which Pharaoh was"³, instead of simply saying "They went to Pharaoh"? Why does he say: *a p m' mte-k n'm-f*, (to reach) "the place where thou art"⁴, instead of: (to reach) "thee"? Or *p m' mte P-m' n'm-f*, (until they came to) "the place in which Pemu was"⁵, instead of: (until they came) "to Pemu"? Or again *a p m' (m)te Pr-to n'm-f*, (it was not hidden) "from the place where the king was"⁶, instead of: (it was not hidden) "from the king"? And in our papyrus: *š-f a p m' nt e Wsr n'm-f*, "she (the soul) goes to the place where Osiris is," instead of: "she goes to Osiris"?

It seems to me that this phrase is mostly used with persons (or things) of special distinction, gods, kings, and things somehow connected with them. Compare also: *a p m' nt e py zm' n'm-f*, (to be taken) "to the place where that papyrus roll (of the god Thoth) is"⁷, instead of (to be taken) "to the papyrus roll". And yet again, *š N. a p m' nt e t tbe n'm-f*, "N. went to the place where the box was" (which contained the magic book of the god Thoth⁸), instead of "N. went to the box," which is what, in all the cases cited above, is really meant.

The phrase thus seems to be used to express the reverence of the speaker before the person or thing forming the subject of the relative sentence. To this type of reverential expression there are parallels. For instance, an Egyptian frequently says *m-bh Pr-to*, "before the king," instead of "to him." To this category seem also to belong certain phrases with *m-s* usually translated "behind," but which must mean in the following passages something like "among the followers," "among the retainers." The usual translation in this connexion is meaningless; see for example the Demot. Pap. Berlin 1522, ll. 2-3 (ed. Spiegelberg, Pl. 84) and (mutilated) Berlin 3169, ll. *x + 3* to *x + 4* (Spieg., Pl. 86): *mte-f t mw hr t htp(-t) m-s Wsr p šy m-s Wn-nfr*, "he (the deceased) takes water (from) upon the offering table among the retainers of Osiris (and from) the lake among the followers of Onnophris"; or *šp-k mw n rpy m-s Wsr*, "thou receivest the water of rejuvenation among the retainers of Osiris" (Berlin 8351, 1-2; ed. Spieg., Pl. 84); or again, *mte-f t mw [hr] htp-t m-s Wsr*, "he (the deceased) takes out water (from) upon the offering table among the followers of Osiris⁹."

¹ Ed. Krall, *Demot. Lesest.*, II, loc. cit.


² Spiegelberg, *Demot. Text d. Priesterdekrete von Kanopus und Memphis*, loc. cit.






³ Pap. Bibl. Nat. 215, ed. Spiegelberg, *Demot. Chronik*, vs., col. a, l. 9, Pls. vii and viia.

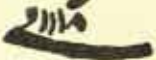

⁴ Pap. Petubastis, Vienna, ed. Krall, *Demot. Lesest.*, II, col. K, l. 19.

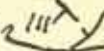

⁵ *Op. cit.*, col. W, l. 5. ⁶ *Op. cit.*, col. W, l. 26. ⁷ I Setna, III, 12, cf. III, 15. ⁸ *Op. cit.*, III, 33.


⁹ Demot. Pap. Dresden, II, 4-5, ed. Brugsch, *Grammaire démotique*, Pl. x. This papyrus badly needs a photographic reproduction or mechanical edition which could be used for palaeographical purposes.

fourth sign of our name, which otherwise looks very much like it. The second sign of the name is the "long *r*,"  (with the curve at its end, as is to be expected in this manuscript). The third sign, which Spiegelberg reads as *wr*, is the real trouble. It really looks like it on a superficial glance. Now we observe that the curve at the top is very small, especially in comparison with that at the top of the similar down-stroke of the









bull-sign  in l. 4. We should in fact expect something like  rather than the simple  which we have. Now the bull-sign always has at the top a hook, going either to the right or to the left; a real hook, which is part of the sign, and not the mere "turn" which we found to be a peculiarity of our scribe. To this official hook he added his characteristic "turn" in writing the bull-sign, and we have a right to expect that he would similarly have added it in the case of the *wr*-sign, thus: . The absence of the "turn" is an additional proof that the sign cannot be the "syllable sign" *wr* assumed by Spiegelberg. It is a simple demotic , which our scribe as usual decorated with a small (unreal) curve. Thus we arrive at the reading *rs*, or, combined with the preceding name of the goddess, 'S-*rs*, "Eserashe," quite a common Egyptian name¹.

The verb "to enjoy" or "rejoice" is mostly written:  , *rsy*,

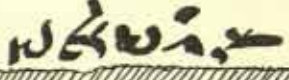
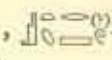
Coptic S. *paue*: B. *paui*: A. *peue*, and from the Fayyûm we have:  , F. *Λευι*, "joy²."

The determinatives of our name cause some difficulty. Here we have the lotus-flower; in Middle Eg. it is usually determined with the nose .


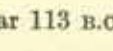
The oldest demotic writing of the word occurs, so far as I know, in a papyrus of the second year of Darius III, i.e., 335-4 B.C., and is most happily preserved in a few different handwritings by witnesses:

      
, 'S-*rs*, Eserashe³.

The next in age is about 250 B.C. (the date is destroyed):

 , 'S-*rs*, Eserashe⁴.

The vocalization of the name must be, according to Coptic, as above; this is clearly seen, I believe, from the following⁵:

 (year 113 B.C.), , P-*rs*, Prasis.

¹ Lieblein, *Hierogl. Namenbuch*, 1032, 1289, 1289a, 2271, 2542.

² Demot. *Chronik*, 157, Spiegelberg, *Handw.*, s.v.; Petubastis, Vienna, W 2, ed. Krall, II, loc. cit.

³ Demot. Pap. Louvre 2430, ed. Revillout, *Corpus Papyrorum Aegypti*, Pls. II and III.

⁴ Demot. Pap. Brussels, no. 3, l. 2; the queries in the transcription are Spiegelberg's.





⁵ Pap. Berlin 3116 B, col. III, l. 18, Pl. 43.





This name was misread by Brugsch¹ as something like *ctr*, an error which prevented him from seeing that our name *P-rš* was identical with the Παῖσος of the Greek Paris papyrus, 5, 33, 5², despite the fact that he had ingeniously discovered that the Greek Paris papyrus contained the same names as the demotic Berlin manuscript. But through this identification we gain a corroboration of the vocalization of the name suggested by the Coptic.

The writing of the word remains at all times much the same (the scribe mostly tries to express the end vowel *e* or *i* in the writing).
























, *ršy ršy p t nb*, "the whole land rejoices, rejoices".

The sign after the — gives the impression that the Egyptian scribe wanted to write the lotus-flower, the form of which is very similar to what we have except that the tail of the demotic form must go *under* the line as in the preceding example above, while in ours it is *on* the line. The scribe may have drawn it so in haste. However this may be, the form we have must be transcribed . The next two strokes may be  as in the hieroglyphic example above⁴, but it is also possible that they may be  as a more general substitute for  (nose).

The last three signs are almost hopelessly spoiled by the tail of the snake of *z-t* from the preceding line; we know, however, that the last two must be  or . The *crux interpretum* is the last sign but two. The choice lies, I believe, between the flower (for in all examples *rš* is written with the flower) and the "nose"  with which the hieroglyphic name is sometimes written⁵. For the "nose" the upper part would be partly suitable (except for the absence of the horizontal strokes which usually accompany it), but the lower part would be quite exceptionally formed and unusual. There is only one sign which in my opinion would fit the requirement; it is , which is used as a determinative as well as phonetically, the sign with which the Delta, *Ti-mhw*, is written.

The lower part of this sign could be written mechanically in this way only if the Egyptian scribe intended to make the three feet of the sign in one stroke.

The fuller form is seen in 

AN UNUSUAL TYPE OF STATUETTE

BY S. R. K. GLANVILLE

With Plate xii.

The British Museum recently acquired¹ a small bronze (copper?) seated figure of a boy, no. 59853 (Pl. xii, figs. 1-3), of the same type as the newly discovered alabaster statuette of Pepi II². Whereas, however, the figure of Pepi II is inscribed on the front edge of its base with his name, the B.M. bronze has a carefully cut spiral (scroll) pattern together with the single hieroglyph 𓏏 on the base itself (Fig. 1). The little figure is thus in form a stamp-seal.

For over thirty years the Museum has possessed a precisely similar stamp-seal in ivory, B.M. 30467³ (Pl. xii, figs. 4-6). Its base is inscribed with a spiral design (somewhat less attractive than that of the bronze) encircling the title and name of the owner in cursive hieroglyphs *try* *rt* *Hty*⁴ (see Fig. 2, where the cutting of the inscription is slightly accentuated).



Fig. 1



Fig. 2



Fig. 3

A third figure of the same general type and of ivory, B.M. 54677, was given to the Museum by Mrs. Russell Rea ten years ago, and came from Professor Garstang's excavations at Abydos in 1907⁵. (It has recently been cited by Pendlebury⁶ for comparison with one of the two naked ivory figures from Palaikastro⁷, which he, with Hall, claimed as Egyptian. As there exist other opinions on this point⁸ the publication of photographs of the B.M. ivory may be useful, apart from the present connexion.) The attitude of the boy in this case differs a little from that of the three similar figures already mentioned, in that he has one leg on the ground instead of drawn up to the body, but in all other respects it is the same (Pl. xii, figs. 7-9). The base, again, is engraved with the title and name of the owner within a spiral border, *imy-r pr Nht mrt hrw*⁹ (Fig. 3).

¹ From the Maxwell Collection, by Lady Maxwell's bequest. *B.M. Quarterly*, v (1930), 49, Pl. xxi. Height $1\frac{3}{8}$ ins. (3 cms.). I have to thank the Keeper of Egyptian and Assyrian Antiquities for permission to publish them.

² Jéquier in *Ann. Serv.*, xxvii, 60, Pl. v.

³ Budge, *Guide to the Fourth, Fifth and Sixth Eg. Rms.*, 84, no. 6. Height $1\frac{1}{4}$ ins. (3.1 cms.).

⁴ I owe the reading of the title to Dr. Gardiner.

⁵ Budge, *op. cit.*, 83, no. 2a. Height $1\frac{1}{2}$ ins. (4.7 cms.).

⁶ *Aegyptiaca*, 33.

⁷ *Op. cit.*, 32, Pl. iii.

⁸ *E.g.*, Valentin Müller in *O.L.Z.*, Dec. 1930, 991 f.

⁹ I read *imy-r pr hry* ("steward and overseer"), *Hty*, etc., and am indebted to Professor Scharff for suggesting that what looked like 𓏏 was really 𓏏 .



1



2



3



4



5



6



7



8



9

Three figure-stamps of the First Intermediate Period.

1—3. B.M. 59853, bronze.

4—6. B.M. 30467, ivory.

7—9. B.M. 54677, ivory.

Actual size.

The spiral decoration on all three seals makes it improbable that any one of them is much earlier than the Eleventh Dynasty or much later than the Hyksos Period in date. The name and treatment of the figure of 54677 suggested to me the Second Intermediate Period; against this, as Scharff points out in a letter, is the more definite evidence for the First Intermediate Period in the name *Hty* (Akhthoes) of 30467; while the $\overline{\text{I}}$ of 59853 is also reminiscent of—and perhaps an abbreviation for—the name *Wih-ki*, which could hardly be later than the Eleventh Dynasty. Finally, seeing that the type of figure with seal-base is clearly developed from the type with plain base (inscribed on the front) represented by the Pepi statuette, it is reasonable to date all three to the early Middle Kingdom or First Intermediate Period. 54677 is perhaps the latest, showing, with its slight alteration in the position of the legs, a further development from the original type¹. Probably because it is the largest it is the most naturalistically—though not the most delicately—modelled of the B.M. figures. The smaller ivory, 30467, is the finest, and shows better workmanship than the bronze, though the engraved base of the latter out-classes the other two.

There is some indication of the purpose of this apparently new class of object. All four examples have two important features in common: the squatting figure touches the lower lip with the index of the right hand; and the figure is that of a boy², although the person represented must have reached maturity³. Moreover three of the figures certainly, possibly all four—if I am right in taking $\overline{\text{I}}$ as an abbreviation of some name like *Wih-ki*—bear the name of (presumably) the owner. The explanation of the objects should be suggested by the relative significance of these three points. (The development into a seal, probably purely formal and due to the greater ease of engraving the under-surface than the front or sides of the base of a small figure, is a secondary feature—a by-product which does not bear on the present enquiry.) Is the finger to the mouth merely an emphasis of the youth of the figure, based on conventional hieroglyphic forms, e.g., $\overline{\text{I}}$? Jéquier seems to think so, and assumes that the figure represents Harpocrates⁴—a possibility in the case of the king, but hardly in the case of the three private individuals. (One would have to suppose that the names on the bases were those of dedicators; but then the figure of the god should wear the uraeus, which is lacking from all except the king, who would wear it in his own right.)

The real connexion is perhaps between the hieratic pose and the name. The Pepi figure was found in the antechamber to the sanctuary of a mortuary temple of that king⁵. It was probably used therefore in the cult of the dead king⁶ or was an offering to his *ka*. The others similarly, then, would be part of the funerary equipment of their owners. And the object of the figures would have been magical: presumably to secure the appropriation of his name by the deceased in the tomb. But why the figure in the form of a boy and not of a grown man?

¹ The field-notes on the tomb (No. 24) in which this object was found, kindly placed at my disposal by Professor Garstang, point to the Twelfth Dynasty as its date.

² 30467 alone has the Horus-lock (partly broken away), but the nakedness of the others almost certainly indicates childhood.

³ Cf. the titles of 54677 and 30467; Pepi became king while still a boy, but as his statuette was found in a funerary temple it was presumably made towards the end of his long reign.

⁴ *Ann. Serv.*, XXVII, 60.

⁵ *Ibid.*, 54 ff., 60.

⁶ Though apparently made during his lifetime, since his name is followed by *enkh di*.

A PROBLEM IN EGYPTIAN GEOMETRY

BY T. ERIC PEET

With Plate xiii.

In the *Supplement* to Professor Archibald's admirable *Bibliography of Egyptian Mathematics* published in Vol. II of Dr. A. B. Chace's *Rhind Mathematical Papyrus*, issued some months ago, occurs a reference to V. V. Struve's forthcoming edition of the Moscow Mathematical Papyrus. It contains the following sentence: "No. 10 seems with like certainty to indicate that the Egyptian of 2000 B.C. knew the formula for the area of a hemisphere." I read these words with some surprise, for the Moscow Papyrus had been known to me from photographs for some years, and one thing that I had decided about No. 10, a singularly difficult problem, was that it did not deal with the area of the curved surface of a hemisphere. I naturally looked forward with interest to the appearance of Struve's promised work, and in particular to his treatment of the problem in question.

This work is now in our hands¹ and I find myself entirely unconvinced by Struve's translation and treatment of No. 10. The Egyptian text is shown on Pl. xiii.

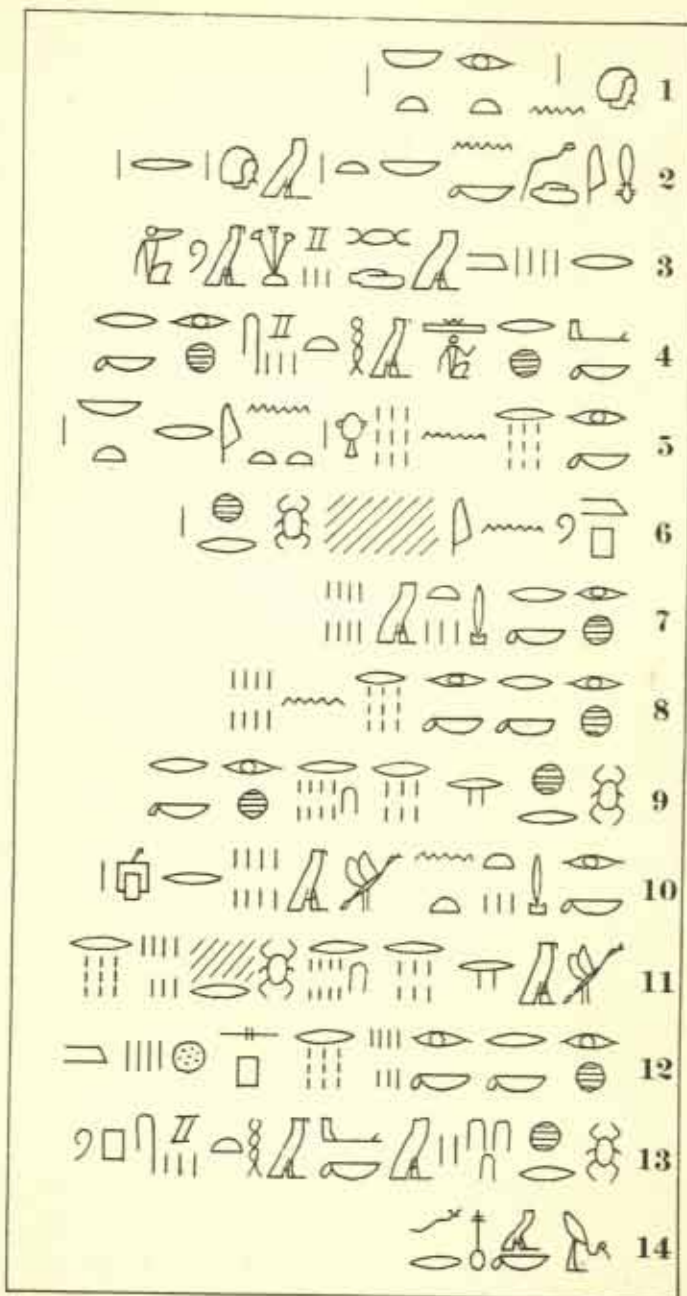
Struve's literal translation may be rendered in English as follows:

"Form of working out a basket. If they mention to you a basket with a mouth of $4\frac{1}{2}$ in preservation. Let me know its surface². Take a ninth of 9, since the basket is half an egg; result 1. Take the remainder, namely 8. Take a ninth of 8; result $\frac{2}{3} + \frac{1}{6} + \frac{1}{18}$. Take the remainder of these 8 after (the subtraction of) this $\frac{2}{3} + \frac{1}{6} + \frac{1}{18}$; result $7\frac{1}{9}$. Reckon with $7\frac{1}{9}$ $4\frac{1}{2}$ times; result 32. Behold, that is its surface. You have found rightly."

Expressed in modern words, Struve's statement of the problem would be "Find the area of the curved surface of a hemisphere whose diameter is $4\frac{1}{2}$." Now if Struve's translation be accepted then the interpretation of the problem as the determination of the area of the curved surface of a hemisphere, even if it does not follow as a necessary consequence, is at least extremely reasonable. And in this case we should have, as Struve sees, to put Egyptian mathematics on a very much higher level than previously seemed necessary. The conception of the area of a curved surface does not necessarily argue a very high level of mathematical thought so long as that area is one which, like that of the cylinder, can be directly translated into a plane area by rolling the object along

¹ *Mathematischer Papyrus des Staatlichen Museums der Schönen Künste in Moskau*. It is reviewed in this number.

² The word used is 𓂏 , literally "land." This is the common word for area in the mathematical papyri, and naturally suggests a plane area. At the same time we must not use this as an argument against Struve's belief that a curved surface was meant, for if the Egyptians had any conception of the area of a curved surface—and we have no proof (unless it be in this problem) that they had—they might quite conceivably have applied the word *het* to it by analogy, despite its etymological unsuitability. Cf. our own word "area."



Moscow Mathematical Papyrus.
Problem No. 10.

the ground. The case is very different, however, when we come to a surface such as that of the sphere, which cannot be directly transferred into plane area. To conceive such an area as area at all is not an elementary process of thought. Yet, if Struve is right, we must believe not only that the Egyptians could do this, but also that they had succeeded in determining its value with the same close degree of approximation as the area of the circle, for their formula $2 \cdot \frac{25}{81} \cdot r^2$ for the hemisphere, as used in this problem, is identical with our own formula $2\pi r^2$ if for π we may substitute the Egyptian value $\frac{25}{81}$, as in the case of the circle¹. It would be very flattering to the Egyptians, and very important for the history of mathematics, if we could place this brilliant piece of work to their credit.

Unfortunately there are against Struve's translation a number of very grave objections. The critical words are those which describe the *nbt* or "basket":

$$nbt \ m \ tp-r \ r \ 4\frac{1}{2} \ m \ r\bar{d}.$$

These words he translates "einen Korb mit einer Mündung zu $4\frac{1}{2}$ in Erhaltung," "a basket with a mouth of $4\frac{1}{2}$ in preservation." That *tp-r* (Coptic $\tau\alpha\mu\rho\sigma$) means "mouth" seems very probable. *r\bar{d}* Struve takes as the infinitive of the verb "to be sound" or "unharmed," and thinks it indicates that the mouth, *tp-r*, is undamaged or complete, i.e., that it is, in technical language, not a small circle of a sphere but a great circle, and that consequently the *nbt* is a hemisphere and not a smaller segment of a sphere. To this there are fatal objections. The words *m r\bar{d}* cannot possibly refer to *tp-r*, from which they are separated by *r 4\frac{1}{2}*; in any case *m* with the infinitive cannot be attached adjectivally to a noun. Moreover, the expression *nbt m tp-r* "a basket with a mouth..." is very doubtful Egyptian; the examples quoted by Struve from Pap. Anastasi I, 14, 3 and Pap. Harris I, 59, 2 are not parallel to this, for in both cases the dimension is followed by a genitive giving the figure, which is missing here. But the real rock on which Struve's rendering breaks up is the preposition *r* before the numeral $4\frac{1}{2}$. *r* is never used in the mathematical papyri to introduce a dimension when only one dimension is given²; it is, however, used to introduce the second of two dimensions when two are given, and it then answers exactly to our "by" in "6 feet by 3." And this gives us the clue to the correct interpretation of the passage. The figure $4\frac{1}{2}$, preceded as it is by *r*, must be the second of two dimensions. Where then is the first? It must be contained in the 9 which so unexpectedly turns up without explanation in line 5, where its sudden appearance is so disconcerting to Struve³. But why was this not mentioned in its proper place in the setting out of the problem? The answer is that in the archetype it was, but that our scribe has omitted it. I am convinced that no one who is conversant with the phraseology of the mathematical papyri and with the Middle Egyptian uses of the prepositions will question the necessity of inserting the word $\overline{\omega}$ followed by a numeral between *nbt* and *m* in line 2, thus restoring the reading

$$nbt \langle nt \ x \rangle \ m \ tp-r \ r \ 4\frac{1}{2} \ m \ r\bar{d},$$

"a basket (?) of *x* in mouth and $4\frac{1}{2}$ in *r\bar{d}*," where *r\bar{d}*, whatever it may mean, is the name of the second dimension given, just as *tp-r* is of the first. The working now becomes intelligible. Two dimensions are given; the first is operated on in lines 5 ff., and the second, the $4\frac{1}{2}$, is only brought in near the end as a multiplier.

¹ Rhind, 41-43, 50.

² Struve's "possible" examples (p. 161) from this papyrus, xxi, 4, 5, 6 and xxii, 4, do not contain the preposition *r* at all. See my remarks on No. 11 in the review of his book in this number.

³ On Struve's theory the working ought to begin with the words "Multiply $4\frac{1}{2}$ by 2; result 9."

But how came the scribe to omit these two words? In this papyrus, as in others of the same period, the cursive form of 𐦏 is often almost indistinguishable from that of 𐦏 (see, for instance, col. xxxv, 5), and the same may well have been true of the original from which it was copied. When the copyist, after writing *nbt* in line 2, brought his eye back to the original, he may have skipped from the 𐦏 which followed it, which he had already vaguely sighted, to the exactly similar 𐦏 a few millimetres further on, and so omitted both *nt* and the numeral¹.

Once the grammatical necessity for restoring these two words is perceived Struve's interpretation of the problem as the determination of the curved area of a hemisphere of diameter $4\frac{1}{2}$ falls under the gravest suspicion, for a hemisphere is fully determined by a single dimension, its radius or diameter, while here we have two, a *tp-r* and a *ꜥd*.

To this it may be replied that Struve has produced strong etymological evidence to show that the *nbt* is in effect a hemisphere. This evidence we must now examine. The word 𐦏 , the reading of which as *nbt* seems certain², is doubtless in origin the well-known word for a "basket," as Struve has pointed out, and our first instinct is naturally to see in it the technical term for a hemisphere, or at any rate a segment of a sphere, which its shape suggests. Struve, who translates it as hemisphere, finds confirmation of this in line 6, where he thinks that the *nbt* was stated to be half an *inr*, "egg," which he holds to be the technical term for a sphere. To this there are two objections. In the first place the reading $\text{𐦏} = \text{𐦏}$ which Struve proposes seems to me palaeographically unsound. The 𐦏 is certain, and the egg-determinative at the end is by no means impossible. After the 𐦏 comes a damaged group which Struve reads 𐦏 . Now the top sign appears to me too thick and too complicated for 𐦏 . In the case of the lower sign I seem to see on each side of the tiny gap above it a trace of the downward right to left stroke with which it was begun, in which case it is very short for an *r* and is more probably a 𐦏 . Lastly, Struve restores the stone-determinative 𐦏 between his group 𐦏 and the egg. This is impossible for the reason that when a word has two determinatives the more generic follows the more specific. Thus even if it were possible to have a word determined by both 𐦏 ³ and 𐦏 they would come in that order, not in the reverse.

But this is not all. Struve believes that *inr*, so written, is the technical term for a sphere, and he infers this from a use of *inr* given in the *Wb. d. aeg. Spr.*, i, 98, where the word is stated to mean an "egg-shell." Now so far as I know this is based solely on a passage in Akhenaten's Hymn to the Disk, which runs: "When the chick in the egg (*šwht*) cries within the shell (*inr*) thou givest him breath within it (the egg) to quicken him." The word used for shell is $\text{𐦏} = \text{𐦏}$ "stone," but it is used metaphorically⁴, and applies only to the material of which the shell is composed; its meaning is only clear by reason of the near presence of the word *šwht*, "egg." We cannot argue from this passage that *inr* can be used alone for an "egg" or an "egg-shell." Surely if the egg had been called upon to provide a technical term for a sphere *šwht* and not *inr* would have been used.

¹ If the numeral was $4\frac{1}{2}$, a possibility which I suggest below, there is a still more obvious reason for its omission. See p. 105.

² That the hieroglyph 𐦏 is meant and not some rare sign such as a semicircle is probable from the characteristic short horizontal stroke within it. That the sign is somewhat differently made in xvii, 2 (obscure in xvii, 3), where it stands for "every," is perhaps only due to the variability of our scribe's hand.

³ If *inr* meant "an egg-shell" 𐦏 would be strictly speaking a word-sign rather than a determinative, but the same order would still be required.

⁴ Note that it is not written with the sign 𐦏 .

For these reasons I do not accept the reading *inr*; and with this reading falls the etymological argument for Struve's interpretation of the problem.

Let us now cut ourselves free from the assumption that the figure is a hemisphere and see where the data lead us. We have a figure the name of which is written \smile , and which is defined by two measurements, of which one, $tp-r$, "mouth" or similar, has been omitted by the scribe, and is therefore unknown, while the other, called rd , is $4\frac{1}{2}$. The figure is also stated to be half of some well-known geometrical figure whose name is unfortunately damaged. The problem is to find its area.

The figure is written with the word *nbt*, a word which means a "basket," but which in this case, where we are dealing with geometry, must not necessarily be assumed to bear its literal meaning, though we should certainly expect it to represent some object of which the sign \smile itself is a not unreasonable picture.

There appear to be two possibilities, according as we take the figure to be in two dimensions or in three. In the first case we have the semicircle¹, and in the second the half-cylinder. Let us take these in their turn.

If the figure were a semicircle the translation would run:

1. *Example of working out a semicircle.*
2. *If they say to you, A semicircle (of 9) in diameter*
3. *by $4\frac{1}{2}$ in height, pray*
4. *let me know its area. You are to*
5. *take a ninth of 9, since a semicircle*
6. *is half a [circle], result 1.*
7. *Take the remainder, namely 8.*
8. *You are to take a ninth of 8,*
9. *result $\frac{8}{9} + \frac{1}{9} + \frac{1}{18}$. You are to take*
10. *the remainder of the 8 after (subtracting)*
11. *the $\frac{8}{9} + \frac{1}{9} + \frac{1}{18}$, result $7\frac{1}{6}$.*
12. *You are to take $7\frac{1}{6} \cdot 4\frac{1}{2}$ times,*
13. *result 32. See, this is its area.*
14. *You will find it correct.*

This reconstruction has the very great advantage of bringing in as the first datum the figure 9 which seemed to occur so entirely without explanation in line 5. On the other hand it has one grave disadvantage, since it requires us to suppose that the Egyptian here gave two measurements, diameter and radius, of a semicircle, when one would have sufficed. For my own part I am not prepared to dismiss this possibility out of hand. Egyptian mathematics was a very concrete and practical science, and a semicircle was a plane figure which might for every-day purposes be regarded as having, like other plane figures, two measurements, length ($tp-r$) and breadth (rd). Is it unthinkable that on the basis of this popular view of the figure there should exist a practical rule for finding the area of a semicircle which proceeded not by halving the area of the complete circle, but by taking $\frac{8}{9}$ of $\frac{8}{9}$ of the diameter (length) and multiplying by the radius (breadth)?

¹ Segments of the circle other than the semicircle, and all symmetrical segments of the ellipse including the semi-ellipse, may be ruled out because any such figure which has 32 for its area and $4\frac{1}{2}$ for its breadth (measured from the centre of the chord to the centre of the curve) is, assuming the Egyptian value of π , in effect a semicircle. In any case none of these except the semi-ellipse satisfies the condition of being half of some familiar figure (I. 6). My rejection of unsymmetrical segments of an ellipse will hardly be questioned.

Supposing for a moment that the figure really is a semicircle¹ what is the force of the words of ll. 5-6: "Take a ninth of 9, since a semicircle is half a [circle]"? The phrase which begins with "since" must explain either the figure 9, or the step as a whole. Now the 9 needs no explanation, being one of the data, and the words must therefore be taken as explaining why the procedure of taking a ninth (as a preliminary to taking $\frac{8}{9}$) associated with obtaining the area of the circle is here adopted.

It will not have escaped the reader that I have here given serious consideration to a solution which involves the very same absurdity for which I rejected Struve's hemisphere, namely the existence of a superfluous datum. If two data may be admitted in the case of the semicircle they may also be admitted in the case of the sphere, and Struve's solution might still be correct, even in view of my emended text.

A little consideration will show that this is not the case. To get the result 32 for the curved surface of the hemisphere Struve is bound to take $4\frac{1}{2}$ as the diameter, not the radius. Now we have in reality two data, a *tp-r* or mouth and a *rd*. No one will dispute Struve's decision that the mouth of a hemisphere can be nothing but the diameter, and, if that is so, the *rd*, which, be it remembered, is $4\frac{1}{2}$, can hardly be anything but the "height" or "depth" measured vertically from the centre of the sphere downwards to the point of contact with the ground (supposing it to lie in the position indicated by the sign \cup). But this depth is of course a radius of the sphere, and its diameter, the lost datum, would in this case be not $4\frac{1}{2}$ but 9, and the answer would be hopelessly wrong. It was probably this very fact, namely that the diameter needed was $4\frac{1}{2}$, that led Struve to play havoc with Egyptian grammar in order to connect the figure $4\frac{1}{2}$ with the dimension *tp-r*. Thus even if we could admit that a hemisphere might have been determined by two data, this hypothesis could not here be reconciled with the one dimension which we have, namely the *rd* of $4\frac{1}{2}$.

Let us now take the second possibility, namely that the *nbt* is a figure in three dimensions. What solid figures could it represent? The Egyptian draughtsman was unacquainted with perspective in the modern sense, and when faced with a solid object drew either a single "characteristic" view of it or a crude combination of two². Confronted with a hemispherical basket the Egyptian would draw it as seen from the side on a level with his eyes, i.e., as a semicircle. And there is one other figure which he might have drawn in precisely the same way, and that is the half-cylinder, i.e., the solid made by cutting a cylinder in two by a plane which contains its axis. If we regard such a figure as lying on its curved surface he would choose its semicircular end as the most "characteristic" view; or, if we regard it as having stood upright, he would choose its ground-plan, again a semicircle, just as in the illustration of Pap. Kahun Pl. viii he represents a cylindrical granary by a circle.

If our problem is to determine the area of the curved surface of a half-cylinder we at once understand the occurrence of two measurements; if the *tp-r* is identified with the diameter, i.e., the mouth of the characteristic semicircle, the *rd* of $4\frac{1}{2}$ will be the height³ of the cylinder, and, the area being 32, a simple calculation shows us that, taking the

¹ I can suggest no reading for the word in l. 6 which on this hypothesis ought to mean "circle."

² See Schäfer, *Von ägyptischer Kunst* (1930), 99 ff.

³ *rd* is determined by Struve with $\frac{\text{xx}}{\text{||}}$, but $\frac{\text{xx}}{\text{||}}$ is also possible. Whether *rd* written with this determinative could be connected with the known word $\frac{\text{xx}}{\text{||}}$, which, according to *Wb. d. aeg. Spr.*, I, 230, is used of "the strip of desert land bordering on the cultivation," it is impossible to say. Nor is it worth while to speculate as to whether this word could suitably be applied to the two long straight edges of half a hollow cylinder lying on its curved face.

value of π as $\frac{25}{8}$, the *tp-r* must also have been $4\frac{1}{2}$. We should then have to restore in line 2 the words $\langle nt\ 4\frac{1}{2} \rangle$, and the fact that the two dimensions given were the same would very satisfactorily account for the omission of one of them by a stupid scribe who thought that the double occurrence of $4\frac{1}{2}$ was a mistake and tried to put it right.

And here I cannot refrain from making, with great diffidence, a suggestion as to the reading of the damaged word in line 6. A semi-cylinder is half of a cylinder, and cylindrical were the wooden measures used for corn. If we look at the damaged word, we see that the remnant of its determinative fits nothing better¹ than 𓂏 , and, with an 𓂏 at the beginning, it is tempting to fill in $\text{𓂏} \text{𓂏}$. I have already said that the lower sign of the central group looks like 𓂏 not 𓂏 and that the upper can hardly be 𓂏 . Whether the flat type of 𓂏 used often in this papyrus—and indeed in this very line—is possible the original alone can decide. The long tail of 𓂏 would admirably account for the wide space after 𓂏 . It is true that this word *tp* is known as a measure of content only from the Eighteenth Dynasty onward (*Wb. d. aeg. Spr.*, 1, 67), but, as weights and measures almost invariably take their names from containers or objects which have tended to assume a fixed shape or size, there is every reason to suppose that a cylindrical container called *tp* existed in Egypt long before the name came to be applied to a definite measure. I do not, however, press this point because it is impossible from the photograph alone to decide whether the reading *tp* is possible.

The problem would now have to be translated as follows:

1. *Example of working out a semi-cylinder.*
2. *If they say to you, A semi-cylinder \langle of $4\frac{1}{2}$ \rangle in diameter*
3. *by $4\frac{1}{2}$ in height; pray*
4. *let me know its area. You are to*
5. *take a ninth of 9, since a semi-cylinder*
6. *is half of a [cylinder]; result 1.*
7. *Take the remainder, namely 8.*
8. *You are to take a ninth of 8;*
9. *result $\frac{2}{3} + \frac{1}{6} + \frac{1}{18}$. You are to take*
10. *the remainder of the 8 after (subtraction of)*
11. *the $\frac{2}{3} + \frac{1}{6} + \frac{1}{18}$, result $7\frac{1}{9}$.*
12. *You are to take $7\frac{1}{9}$ $4\frac{1}{2}$ times;*
13. *result 32. See, this is its area.*
14. *You will find it correct.*

We have still to explain the words "Take one ninth of 9, because a half-cylinder is half of a cylinder." The implication must be that if the curved surface of a whole cylinder had to be determined the ninth (which is clearly a constant) would have been taken not of 9 but of 18. Now our datum for the diameter was of course not 18 but $4\frac{1}{2}$, so that the method prescribed for the surface of a whole cylinder must have begun "Take a ninth of 4 times the diameter." Here the scribe adds the explanatory sentence to make it clear why he operates not on 4 times the diameter, i.e., on 18, but on twice the diameter, namely 9. The only difficulty about this interpretation is that the working ought to have begun with the multiplication of $4\frac{1}{2}$ by 2 to get the 9^2 .

¹ Note that the older photograph published by Struve as Fig. 12 on p. 164 of his book, while it rules out several other possibilities, leaves the reading 𓂏 for the damaged determinative quite irreproachable.

² Note, however, that the same difficulty besets Struve's solution. See p. 101, n. 3.

Between the rival claims which I have here established for the semicircle and the half-cylinder I am not prepared to decide. Both have advantages and disadvantages. The semicircle accounts for the mysterious 9 in line 5, but asks us to believe that a semicircle could, if only in a rule-of-thumb, be determined by two measurements when one is enough. The half-cylinder not only gives a reason for the existence of two measurements but also explains the dropping of one of them; but that the word written \smile is etymologically as likely to be a half-cylinder as a semicircle I am rather inclined to doubt. Our data are in fact insufficient, and the reasons which might incline us to the one solution or to the other are psychological rather than rational.

I do not know how many mathematicians I shall convince that this problem deals not with a hemisphere but with a semicircle or semi-cylinder. I am, however, persuaded that no philologist will doubt my restoration of the data of the problem¹, whatever difficulties they entail, and I am content to have insisted on a fundamental principle in the interpretation of all mathematical papyri. Our knowledge of Middle Egyptian grammar, syntax and palaeography is now, if far from complete, very considerable, and if we cannot always tell what an Egyptian sentence means we can often say what it does not mean. The first step in dealing with any problem is to satisfy ourselves, if possible, that our translation of the Egyptian words is beyond criticism. Not until this is done should our view of what may be mathematically probable be allowed to influence us².

¹ Grammar cannot, of course, determine the actual numeral to be restored, though it can establish the fact that a numeral has been lost.

² Eisenlohr, attempting to interpret the Rhind Papyrus in 1877, when the study of Egyptian grammar was still in its infancy, was justified in using the opposite process, that of guessing, from the figures, what the problem must be and then trying to force the required meaning out of the Egyptian words.

THE TOMB OF QUEEN INHAPI

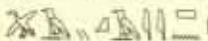
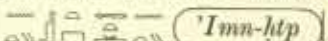

AN OPEN LETTER TO THE EDITOR¹

DR. EL-BAHRĪ,
KURSAH.

February 13, 1931.

DEAR PEET,

You are quite right in the footnote on page 35 of *The Great Tomb Robberies of the Twentieth Dynasty* when you correct me on the matter of the Great Place and the tombs of Inhapi and of Amenhotpe. There is no doubt about my having been wrong—even more so than you seem to have realized—but once the error is corrected we can add a small point to our knowledge of the Necropolis.

Our question is in the interpretation of the docketts on the coffins of Ramesses I, Seti I and Ramesses II (Maspero, *Mummies royales*, pp. 551, 557, 558, and Daressy, *Cercueils des cachettes royales*, 61018-20). In them it is recounted how on the 17th Day of the 4th Month of the Second Season in the 16th Year of King Siamen the bodies of the three kings were transferred to  ('In-Hapi')  (Imn-htp) .

Breasted (*Ancient Records*, iv, §§ 665-667) translates this phrase "the tomb of Inhapi which is in the 'Great Place' wherein King Amenhotpe rests." I took Breasted's translation and interpreted it, as I believe he did, to mean that the tomb of Inhapi was in a part of the Necropolis called "The Great Place," which "Great Place" also contained the tomb of Amenhotpe. However, to you the passage surely means that the body of Amenhotpe lay in the tomb of Inhapi, not that his tomb lay in the "Great Place," although you agree with Breasted and with me that the Great Place was "the place in which was the tomb of Queen Inhapi."

But have any of the three of us the right to introduce that first *in* into the phrase? As Hayes has just remarked to me, in all the three practically identical docketts the scribe never once wrote *pt kst n 'Inhapi nti m*, etc., and now that I come to think of it, I do not believe he intended to. In fact, I think that he is saying that they were bringing the mummies "to the tomb of Inhapi which is 'the great place' which Amenhotpe rests in" and that the scribe was using "great place" as a name for a royal tomb—a current practice, as you show in the *Tomb Robberies*, p. 9. All of us were wrong in thinking that the term meant a part of the Necropolis. You were right in stating that Amenhotpe's body was in Inhapi's tomb.

This last point we may take as certain, but before we go any further we must revise Breasted's interpretation of other docketts on the same coffins (*Records*, iv, §§ 690-692).

¹ [The letter here published is a reply to one of mine to Mr. Winlock in which I raised the question of the identification of the tomb found in 1914 by Lord Carnarvon and Dr. Carter on the Dirā' Abu'l-Nagā with the Eternal Horizon of Amenophis I referred to and shortly described in the Abbott Papyrus. Mr. Winlock's letter is not a direct answer to my question, but contains matter of such interest and value that readers of the *Journal* will doubtless be glad to have access to it. EDITOR.]

These state that in some 10th Year the mummies of Seti I and Ramesses II were put into the tomb of Amenhotpe I. The dockets this time do not name the king whose year is given, but Breasted assumes him to have been Pesibkhenno II, the successor of Siamen, and then concludes that this move in the 10th Year of Pesibkhenno II was the last to which the mummies of Seti I and Ramesses II were subjected. Hence follows his statement that the Royal Cache in which the mummies were found in modern times was the tomb of Amenhotpe I.

Of course, if you agree with Carter that the tomb which he found on top of the Dirâ' Abu'l-Nagâ was that of Amenhotpe I (*Journal*, III, 147), then this is impossible. If you believe that the Abbott Papyrus contains an itinerary, as I tried to demonstrate (*Journal*, x, 223, Pl. xiii), it is highly improbable. I cannot conceive how the investigators could have started at the Dêr el-Bahrî Cache, have walked from there three to four kilometres to their next tomb, and then have come all the way back to their starting-point. Surely if the Cache were Amenhotpe's tomb, they would have investigated Mentuhotpe's next (instead of last), and the itinerary would have been reversed. Again, the description of the Amenhotpe tomb in the Abbott Papyrus, difficult as it is anyway, is utterly unintelligible if applied to the Cache. However, in addition to these difficulties there is a greater one right in the dockets themselves. We have seen that before the Year 16 of Siamen, Amenhotpe's body was in the tomb of Inhapi. The Breasted theory would have it that at some subsequent time—presumably not later than the Year 10 of Pesibkhenno II—his body was back in his own tomb, for there he was found in modern times. This moving back and forth strikes me as improbable—doesn't it strike you so too?

The trouble lies with that nameless Year 10. Unfortunately, not only is the king's name lacking, but even from the placing of the dockets on the coffins you cannot fix the date with absolute certainty in relation to the dates of the other dockets. Breasted seems to have come to his conclusion about it thus: Nesikhonsu, wife of the High Priest Paynudjem II, died in a 5th Year and was buried in the Cache by certain officials whose chief likewise transferred Seti I and Ramesses II in a 10th Year. Paynudjem II died in the 16th Year of Siamen. Breasted (*Records*, IV, § 689) assumes that Nesikhonsu survived him and must have died in the 5th Year of Siamen's successor, Pesibkhenno II, and therefore that it was in the 10th Year of the same reign that the same officials moved the mummies of Seti and Ramesses to the tomb of Amenhotpe. However, Maspero (*Momies royales*, pp. 710-712) makes out a very good case to prove that Nesikhonsu died before her husband, basing his arguments on documents outside the royal mummy series. Maspero had a really remarkable flair, and in this case, as in so many others, he was right. Her bandages corroborate him. Nesikhonsu was wrapped in linen made by her husband, the High Priest Paynudjem II, in the Year 3 (*Momies royales*, p. 579), and this can only be the Year 3 of Siamen. If she died in the Year 5 of Siamen, nothing is more natural than that such linen should have been used for her. Had she died sixteen or more years later in Pesibkhenno's reign, we should hardly expect to find her bandaged in linen woven in Siamen's 3rd Year—at least eighteen years earlier. And then finally, the leather braces on her mummy bore the name of her husband (*ibid.*)—surely evidence that her husband buried her.

I feel absolutely confident that Nesikhonsu died in the Year 5 of Siamen. If you agree, you will see that a perfectly consistent situation among the officials results. Nesikhonsu was buried by the Divine Father of Amûn, and Overseer of the White House, Djekhonsefrankh, accompanied by three other officials. In the Year 10—surely of Siamen

still—the same Djekhonsefrankh, accompanied by the Divine Father of Amūn, Wennofer, and another, moved the royal mummies into the tomb of Amenhotpe I. In the Year 16—this time certainly of Siamen—Djekhonsefrankh, Wennofer and four others buried the High Priest Paynudjem II. One of the officials on this last occasion was the Divine Father of Amūn, the Scribe of the Vizier and Inspector, Nesupekshuti, and he was probably one of the party which had transferred the mummies of the Nineteenth Dynasty kings to the tomb of Inhapi three days before. This is a much more consistent succession of officials than you will get if you follow the Breasted theory.

I may seem to have wandered rather far afield, but really I still have the tomb of Inhapi in mind, only I had to get rid of that troublesome Year 10 of Pesibkhenno II and of the idea that the mummies of Seti and Ramesses were moved again after they were once put into Inhapi's tomb. With that out of the way, we have a very simple and straightforward tale.

In the Year 10 of Siamen, the mummies of Seti and Ramesses were moved to the tomb of Amenhotpe I. Doubtless his mummy was there at the time. In the Year 16 of Siamen they were moved to the tomb of Inhapi, to which Amenhotpe's mummy had already been transferred. There is no record of their ever having been moved again, and I am sure they were not. Inhapi's tomb was the Cache. The High Priest Paynudjem II had chosen it for the burial place of his wife. (A few years before, a daughter of King Paynudjem had been buried in the tomb of Meryet-Amūn in just the same way—*Metrop. Mus. of Arts Bulletin*, 1929, Nov., Section II, p. 23; 1930, Dec., Section II, p. 19.) Eleven years later the High Priest himself was dead, and Inhapi's tomb was being opened up for his burial. In the Year 16, on the 17th Day of the 4th Month of the Second Season, the mummies of the great Pharaohs of the Nineteenth Dynasty were carried into it, and three days later the High Priest himself was laid beside them. If only we had a decent record of how everything lay in that tomb, we could work out the whole tale.

Admit that the tomb was Inhapi's originally, and you will find that in location it works in extraordinarily well with the few Eighteenth Dynasty queens' and princesses' tombs so far discovered:

(1) Starting at the north, behind the side wall of the Hatshepsut Temple at Dér el-Bahrī we have the tomb of Meryet-Amūn (*M.M.A. Bulletin*, 1929, Nov., Section II, pp. 14 ff.).

(2) In the next hidden bay of the cliff, just 300 metres to the south-west, comes this tomb of Inhapi. Lansing dug around there in January, 1920, and found a few scraps of an early Eighteenth Dynasty coffin, which may have come from it.

(3) Still to the south-west, and 450 metres distant, was the tomb of Ahmose Tumerisi (*M.M.A. Bulletin*, 1926, March, Section II, p. 8). Around about it, on the site of the unfinished Srankhkarēr Temple and in the cliffs above, there was a small early Eighteenth Dynasty cemetery.

(4) High up in the cliff at the head of the next small valley, 150 metres away, there is a tomb like Hatshepsut's early tomb (No. 6 below), called by the Arabs *El-Bab el-Mo'allak*. It is surely an Eighteenth Dynasty queen's tomb.

(5) Roughly a kilometre further on, in the Valley of the Queens, was found Ahmose, the daughter of Sekenenrēr (Schiaparelli, *Esplorazione della Valle delle Regine*, p. 13).

(6) Queen Hatshepsut's first tomb is hidden high up in the cliff near the head of a valley which drains the southern slope of the mountain, a kilometre and a half north-by-west from the Valley of the Queens (Carter, *Journal*, iv, 114).

(7) Neferurēr appears to have been buried about 1000 metres to the west (Carter, *Journal*, iv, 109).

(8) Still further north-west was the tomb discovered by the natives in 1916 (*ibid.*).

(9) To the south and west of the mountain there is a group of tombs of women of the harims of Tuthmosis IV and Amenhotpe III (Legrain, *Ann. Serv.*, 1903, p. 138, and 1904, p. 139; Carter, *Journal*, iv, 121-112).

Obviously, the prerequisite for the queen's tomb in the Eighteenth Dynasty was a hidden site, preferably a mountain gorge. Inhapi's tomb was in just such a gorge, and although it is nearer the centre of the Necropolis than those chosen for most of the similar tombs known to us, this gorge was always a deserted one. Except for an unfinished pit, there is not another tomb in it. Incidentally, if my identification is right, perhaps we ought to go back again to the docket and read: "the crag of Inhapi which is 'the great place' which Amenhotpe rests in." With a cliff rising 70 metres almost sheer above the tomb mouth, and the terrace above the cliff rising still a further 50 metres, perhaps $\Delta \text{𓂏} \text{𓂏} \text{𓂏} =$ should be translated "the high rock"—which it would appear to mean, literally.

I must admit that I am as surprised as anyone can be at having written this letter. Up to a couple of days ago I was completely convinced that Inhapi's tomb was on top of the Dirâ' Abu'l-Nagâ, in "The Great Place" near the tomb of Amenhotpe I. Since reading your note in the *Tomb Robberies* and following out its implications, I, at least, am entirely convinced that Inhapi's tomb is the Royal Cache of Dêr el-Bahri.

Most sincerely yours,

H. E. WINLOCK.



H. R. Hall.

Photo Russell London

DR. H. R. HALL

The death of Dr. Hall on 13 October 1930, sudden and wholly unexpected, cut short in its prime a life so vigorous, with interests so many, that in a notice as brief as the present some of its varied aspects must inevitably receive less than the justice they deserve. His activities covered so wide a field that few of his contemporaries—and of those few I cannot claim to be one¹—were competent to follow them all with expert judgement: and his sturdy frame seemed to have so firm a hold of life that his friends had not begun to look back on his career or form a considered estimate of its achievement. Nevertheless, it is fitting that in the *Journal* of a Society to which his services were great his death should not pass unrecorded: and if it is too soon to write in detail of his work, some tribute may at least be paid to a personality which endeared its owner to friends in every continent.

Harry Reginald Holland Hall was born in 1873 of a stock from which some of his tastes were inherited. His grandfather, Harry Hall of Newmarket, was a popular painter of sporting subjects in the first thirty years of the Victorian age, and his father, Sydney Prior Hall, who also worked in oils, was a draughtsman familiar to many generations of Oxford men as the author of the cartoons which formerly hung on the walls of the Union Society's smoking-room, and to a wider public through his sketches for *The Graphic*—a paper which he first served in France during the Franco-Prussian War and which later made use of him as its representative on the travels of royal personages in Canada, India and elsewhere. Though he had no pretensions as a creative artist, H. R. Hall is said even in boyhood to have shown signs of that critical appreciation which grew keener in the course of years. The discrimination of his judgement was not least among the debts he owed his father; but from him too he learnt something more—a manly devotion to high ideals which filled him with resentment at every kind of sham, as he was wont to show in his outspoken virulence against some of the recent vagaries in art. But art was not his only interest. At the age of ten he started a museum of curiosities, and at sixteen he had written a history of Ancient Persia—a work whose completion was followed at once by the plans for a more ambitious effort to bear the high-sounding title “A History of Egypt from Menes to Caesarion.” Even before he left school, Hall was marked out from his fellows as one who could talk with some approach to knowledge on a surprising variety of subjects. Besides art and architecture, and history, ancient and modern alike, thanks to voracious reading, keen observation and a retentive memory, he had a notable fund of information on international politics, armies and navies of every age, railways, languages, comparative religion and even theosophy. In fact, says Mr. Gordon of his youth, “interest in life was the keynote of his character”: and the child was emphatically the father of the man.

¹ For indispensable help in writing this brief appreciation I am indebted to the generosity of several friends—Mr. Norman Baynes, Mr. S. Burdett-Cloutts, Sir Arthur Evans, Mr. E. J. Forsdyke, Mr. S. R. K. Glanville, Mr. F. G. Gordon, Mr. C. O. Skilbeck and Mr. D. Skilbeck—to all of whom my warmest thanks are due.

Hall entered Merchant Taylors' School in 1886—a podgy, untidy boy whose positive, though by no means arrogant, opinions on the most diverse matters soon gave promise of distinction to come. With so many distractions to occupy his mind, he did not excel in the narrow curriculum of Greek and Latin. Much of his spare time was spent in the British Museum, and “following Hall down the banks of the Nile” was a pedagogue’s description of ways which in prospective candidates for classical emoluments meant going to perdition. Nevertheless, he was elected to a scholarship in history at St. John’s College, Oxford, and in the more spacious atmosphere of a University he found himself at once. Under the inspiring guidance of his friend and tutor, W. G. Pogson-Smith, he threw himself with gusto into the historical side of Greats, and with the encouragement of Professor Sayce and Sir Arthur Evans laid the foundations of his knowledge of Aegean archaeology. Egypt now had a rival: but Egyptological pursuits were far from being abandoned—as may still be seen from the rude hieroglyphs, burnt with a poker, which preserve his name on the fireplace of the rooms he occupied as an undergraduate¹—and with the help of Professor Griffith he offered the elements of Egyptian history and language as a special subject in his Final Examination. For his University and his College he always had a strong affection. Loyalty was one of his outstanding qualities, but to Oxford it was given in special measure; and in later life, when far greater distinctions were already his, no tribute to his attainments seemed to give him more genuine pleasure than his election to an Honorary Fellowship at St. John’s.

With an ingrained enthusiasm for the records of the past and an Egyptological equipment commendable in a youth of twenty-two, Hall was a strong competitor for a vacancy in the Department of Egyptian and Assyrian Antiquities in the British Museum. He was appointed an Assistant in 1896, became Deputy Keeper in 1919, and finally succeeded to the Keepership in 1924 on the retirement of Sir E. A. Wallis Budge. Of his earlier work at Bloomsbury little need be said: its tangible results are to be seen in a long series of catalogues—*Coptic and Greek Texts of the Christian Period* (1905), *Scarabs in the British Museum*, I (1913), and volumes II–VII of *Hieroglyphic Texts* (1912–1925), which were followed in 1927 by the definitive publication, produced with the collaboration of C. L. Woolley, C. J. Gadd and Sir Arthur Keith, of the finds at Al-‘Ubaid. When, however, he became Keeper, his activities had more obvious results. It was inevitable that so strong a personality should leave its mark on the collections. His grasp of culture as a whole, his sense of continuous development in form and technique, his keen appreciation of the beautiful and his sympathy with the interests of the ordinary man combined to suggest new selections and new arrangements, the effectiveness of which was increased by his skill in the art of window-dressing. To make the most of the material in his charge was a duty which Hall took seriously. Not only was he generously considerate in his treatment of learned visitors to the Department, but by ready accessibility to the Press he essayed to lend his help in sustaining the interest of the general public in the progress of near-eastern archaeology.

His catholic knowledge of the material was mainly due to persistent reading and an intimate familiarity with museums. Of work in the field his experience was small. It is true that he was with Naville at Dêr el-Bahri—where his visit during the final season, when special leave was no longer forthcoming, was taken out of his ordinary holiday—and later at Abydos: but, though his discovery of Al-‘Ubaid will be remembered, excavation was a task in which his rapid methods and impatience of delay scarcely qualified him to excel. Yet his value was probably increased by his freedom from the

¹ Staircase 7, set 38.

trammels which constrain the field-archaeologist to concentrate on the problems of his particular site. His business was rather to place finds in their proper setting—to work new links into the chain of evidence for the history of the ancient world. And the ancient world for Hall was an area of wide extent.

In the days when he was an undergraduate he was already in love with Hellas. At that time the discovery was new that classical Greece had not sprung mature out of a world of barbarism: Schuchhardt's *Schliemann* had been published just before he went to Oxford, and he lived through the whole exciting period in which the beginnings of the story were pushed back from the mainland to Crete. For Hall the Hellenist this was interest enough, but the vital connexions of Minoan culture with Egypt moved him as an Egyptologist as well. In 1901, almost simultaneously with the appearance of Sir Arthur Evans's first report on the palace at Knossos, he published his earliest book—*The Oldest Civilization of Greece*. In it he attempted, without reproducing all the material to be found in the works of Schliemann and Tsountas, to give as critical an account of Greek origins as the available evidence allowed. At such a moment, when the results reached by Evans and Halbherr were about to be revealed in something like their full significance, a still-born reconstruction would have been a venial failure. Nevertheless, though Hall's accustomed sanity forbade him to go beyond the established facts, the book was one of value. It approached the problems of prehistoric Greece from the solid ground of Egypt and Mesopotamia, and on such matters as the relation of the newly-discovered Cup-bearer fresco to the paintings at Thebes in the tombs of Rekhmirêr and Menkheperresenb its pronouncements were such as to need little emendation. Even on the central issue he went so far as to write "it is very possible...that Crete and the neighbouring islands were the cradle of Mycenaean art" (p. 183). But the outstanding feature of the book is perhaps to be found rather in the development of a theme to which Hall constantly returned in later years—the cultural continuity, obscured, it is true, by the advent of new elements and fresh traditions, between the Aegean civilization of the Bronze Age and that of classical Greece. To the task of building up the background against which Hellas must be set he addressed himself again in his best-known book—*The Ancient History of the Near East*, a comprehensive survey of the rise of culture in the Land of the Two Rivers, Egypt, Palestine, Asia Minor and the Aegean down to the Battle of Salamis. This work, familiar to a far wider public than the students in the school of Literae Humaniores for whom it was originally written, was published in 1913 and reached its seventh edition in 1927. To keep it *au courant* with the advance of knowledge, so far as the exigencies of stereotype allowed, was one of its author's hobbies, and with the help of its copious *addenda* it may fairly be said still to hold the particular field which it was designed to occupy.

From such general themes Hall was diverted shortly before the War to the more local problems of the Aegean. In response to a publisher's invitation he wrote *Aegean Archaeology*—a concise and freely-illustrated handbook wherein accurate information is enlivened by familiarity with the excavated sites of Crete and its surroundings. This led in turn to his delivery of the Rhind Lectures at Edinburgh in 1923, lectures which finally saw the light five years later in a volume called *The Civilization of Greece in the Bronze Age*. The book achieves its aim, despite an effort at completeness which resulted in a somewhat difficult text, documented with a miscellaneous assortment of photographs. As usual, Hall had much to say on the connexion of Crete with neighbouring cultures to the South and East, and his criticism of some recent speculations shows all his characteristic width of knowledge and soundness of judgement. If he was content with

a more cursory treatment of developments on the Greek mainland, the reasons were perhaps that, to one who approached from Egypt, this was the remoter side of Greece and that, in later years, a new interest distracted him from the details of the latest work on the soil of Greece itself—details which he could justly regard as of little relevance to his proper studies.

As in youth he had seen the recovery of Minoan civilization, so in middle age he lived through the years in which the extent and antiquity of the Sumerian culture were revealed. Before the War, in his dealings with Asiatic material, Hall had been able to consult his friend and colleague L. W. King; but with King's death and his own visit to 'Iraq in 1918-19 much of his attention came inevitably to be concentrated on the results of excavation in Babylonia. The work at Al-'Ubaid, Ur and elsewhere opened a new chapter in archaeology. Its subject was one which fell within Hall's official province, and to its problems he addressed himself with an energy which grew greater when his early conjectures about Sumerian affinities seemed to find confirmation in the discoveries at Mohenjo Daro and Harappa. On it he lectured many times during the last ten years; and, though in this region he was handicapped by inability to read any of the languages written in cuneiform, he came to speak on the early history of Babylonia with an authority approaching that which he possessed on Egypt and the Aegean. Of his activities in this new field his contributions to the official publication of Al-'Ubaid are a monument, and his characteristic enthusiasm for the study is revealed in the racy narrative of his campaign in 'Iraq which appeared a few days after his death—*A Season's Work at Ur*.

Besides his books, Hall produced a large number of papers for learned periodicals, among which this *Journal* came to have a foremost claim. On all his writings the mark of his personality was plain. A wide humanity never allowed him to forget that in material remains we have, not only matter for technical discussion, but objects which are often of high aesthetic value and always records of human experience. Because he treated the products of excavation primarily as clues to the culture of their makers, Hall was essentially an historian. It is true that his business was mainly with periods for which archaeological evidence bulks larger than the written word, but here and everywhere, because his interest was concentrated on the life and fortunes of men and peoples, his work always bore the mark of a mind whose final aim was the study of human history. In that respect, however, he was by no means unique. But he had other qualities which gained him a position wherein it is not easy to think of his successor. The width of his knowledge, which covered the Aegean, Egypt and 'Iraq, as well as Syria and Asia Minor, gave him exceptional opportunities to correlate results from neighbouring fields and to attack the more local problems of the border lands. When fresh traces of Egyptian connexions turned up in Crete or Minoan faience appeared at Aššur, he had material after his heart. It was typical of his peculiar gifts that, besides the relations between Crete and Egypt, he made the Philistines and the Peoples of the Sea subjects specially his own, and that he gave much time and thought to the sojourn of the Israelites in Egypt—a subject whereon he essayed to revive Josephus's view that the Exodus is a Hebrew version of an incident in the expulsion of the Hyksos. As Sir Arthur Evans has said, in the archaeology of the Nearer East he was a great liaison-officer; and this is perhaps the capacity in which, among scholars, he will be most sorely missed.

The writing of books and articles largely occupied his leisure; yet he found time as well for activities outside his study in places where his presence will be missed as acutely as by his colleagues in the Museum. Besides being a Vice-President of the Society of Antiquaries and sitting on the Councils of the Royal Asiatic Society and the Society

for the Promotion of Hellenic Studies, he gave his help with especial generosity to the Palestine Exploration Fund, of which he became chairman in 1922, and to our own Society. From 1912 till his death he was a member of the Committee, where his wide knowledge both of people and of things, his sound common-sense and frank sincerity of conviction won for his opinions an outstanding respect. For some years, too, he acted as Honorary Secretary and as Editor of this *Journal*; but these offices he was compelled to resign when, for the only occasion in his career, his life was diverted for a while by the War into less shaded paths than those of scholarship. Soldiering seems early to have appealed to a character wherein love of country was strong, and in which there was also a certain tendency to the dramatic. Though anything like militarism was far from his nature, in his undergraduate days he had belonged to the Oxford University Volunteers, and when he settled in London he had joined the H.A.C. During the Great War he was employed on duties which gave scope to his sound knowledge of German and his intimate acquaintance with Dutch. At first, in the Military Section of the Press Bureau, he was concerned with the evidence for casualties on the other side, and later, after he had been transferred to the Intelligence, among other occupations it became his special business to collect information about air-raids on England. Finally, towards the end of 1918, when ill-health made it impossible for L. W. King to go so far afield, he was sent to 'Iraq with instructions to continue the work, begun by Dr. Campbell Thompson, of preserving antiquities from unnecessary damage and of taking such opportunities of fresh excavation as occurred. The five months which Hall spent in southern Babylonia were a happy memory: with what zest he roughed it at the head of his cosmopolitan crew round Ur, Al-'Ubaid and Shahrain may be divined from the pages of *A Season's Work at Ur*.

It was characteristic of Hall to throw himself, at the age of forty-five, into the adventure of prospecting among the mounds of Babylonia with the unaffected enthusiasm of youth. As the contemporaries of his boyhood had been able to foresee the man, so those who knew him in later years could not fail to discern the boy still young beneath the surface of the savant. The charm which won so many friends sprang from this unspoiled youthfulness of spirit. Whatever his surroundings, wherever the conversation turned, Hall was never bored. Whether it was a serious discussion among scholars or a Twelfth Night celebration to amuse the children of his friends, his whole energy was bent to the business of the moment. This infinite capacity for interest was the gift which impressed even the most casual acquaintances. The versatility of his mind gave distinction to his talk; but it was the ingenuous sincerity of his character which gained the confidence of strangers and the devotion of his friends. Growing familiarity only made his solid worth more manifest. There can have been few who were thrown into frequent contact with him whose feelings did not ripen into those of friendship. To the staff of his department in the Museum, at least in the eyes of an observer from outside, he appeared to be something like an elder brother—honoured and respected, indeed, but with a warmth not to be commanded by a mere official chief. Doubtless at times the defects of his qualities were trying. Impetuous energy made his demands severe, and an incorrigible untidiness which is the penalty of speed might invite well-founded criticism. But such shortcomings went for nothing in the presence of his invincible good-will towards every scholar of the younger generation whose ideals enlisted his respect. His loyalty to his juniors was staunch, and his unconcealed joy at their successes was a measure of the generosity with which he put help and opportunities in their way.

a more cursory treatment of developments on the Greek mainland, the reasons were perhaps that, to one who approached from Egypt, this was the remoter side of Greece and that, in later years, a new interest distracted him from the details of the latest work on the soil of Greece itself—details which he could justly regard as of little relevance to his proper studies.

As in youth he had seen the recovery of Minoan civilization, so in middle age he lived through the years in which the extent and antiquity of the Sumerian culture were revealed. Before the War, in his dealings with Asiatic material, Hall had been able to consult his friend and colleague L. W. King; but with King's death and his own visit to Iraq in 1918-19 much of his attention came inevitably to be concentrated on the results of excavation in Babylonia. The work at Al-'Ubaid, Ur and elsewhere opened a new chapter in archaeology. Its subject was one which fell within Hall's official province, and to its problems he addressed himself with an energy which grew greater when his early conjectures about Sumerian affinities seemed to find confirmation in the discoveries at Mohenjo Daro and Harappa. On it he lectured many times during the last ten years; and, though in this region he was handicapped by inability to read any of the languages written in cuneiform, he came to speak on the early history of Babylonia with an authority approaching that which he possessed on Egypt and the Aegean. Of his activities in this new field his contributions to the official publication of Al-'Ubaid are a monument, and his characteristic enthusiasm for the study is revealed in the racy narrative of his campaign in Iraq which appeared a few days after his death—*A Season's Work at Ur*.

Besides his books, Hall produced a large number of papers for learned periodicals, among which this *Journal* came to have a foremost claim. On all his writings the mark of his personality was plain. A wide humanity never allowed him to forget that in material remains we have, not only matter for technical discussion, but objects which are often of high aesthetic value and always records of human experience. Because he treated the products of excavation primarily as clues to the culture of their makers, Hall was essentially an historian. It is true that his business was mainly with periods for which archaeological evidence bulks larger than the written word, but here and everywhere, because his interest was concentrated on the life and fortunes of men and peoples, his work always bore the mark of a mind whose final aim was the study of human history. In that respect, however, he was by no means unique. But he had other qualities which gained him a position wherein it is not easy to think of his successor. The width of his knowledge, which covered the Aegean, Egypt and Iraq, as well as Syria and Asia Minor, gave him exceptional opportunities to correlate results from neighbouring fields and to attack the more local problems of the border lands. When fresh traces of Egyptian connexions turned up in Crete or Minoan faience appeared at Aššur, he had material after his heart. It was typical of his peculiar gifts that, besides the relations between Crete and Egypt, he made the Philistines and the Peoples of the Sea subjects specially his own, and that he gave much time and thought to the sojourn of the Israelites in Egypt—a subject whereon he essayed to revive Josephus's view that the Exodus is a Hebrew version of an incident in the expulsion of the Hyksos. As Sir Arthur Evans has said, in the archaeology of the Nearer East he was a great liaison-officer; and this is perhaps the capacity in which, among scholars, he will be most sorely missed.

The writing of books and articles largely occupied his leisure; yet he found time as well for activities outside his study in places where his presence will be missed as acutely as by his colleagues in the Museum. Besides being a Vice-President of the Society of Antiquaries and sitting on the Councils of the Royal Asiatic Society and the Society

for the Promotion of Hellenic Studies, he gave his help with especial generosity to the Palestine Exploration Fund, of which he became chairman in 1922, and to our own Society. From 1912 till his death he was a member of the Committee, where his wide knowledge both of people and of things, his sound common-sense and frank sincerity of conviction won for his opinions an outstanding respect. For some years, too, he acted as Honorary Secretary and as Editor of this *Journal*; but these offices he was compelled to resign when, for the only occasion in his career, his life was diverted for a while by the War into less shaded paths than those of scholarship. Soldiering seems early to have appealed to a character wherein love of country was strong, and in which there was also a certain tendency to the dramatic. Though anything like militarism was far from his nature, in his undergraduate days he had belonged to the Oxford University Volunteers, and when he settled in London he had joined the H.A.C. During the Great War he was employed on duties which gave scope to his sound knowledge of German and his intimate acquaintance with Dutch. At first, in the Military Section of the Press Bureau, he was concerned with the evidence for casualties on the other side, and later, after he had been transferred to the Intelligence, among other occupations it became his special business to collect information about air-raids on England. Finally, towards the end of 1918, when ill-health made it impossible for L. W. King to go so far afield, he was sent to 'Iraq with instructions to continue the work, begun by Dr. Campbell Thompson, of preserving antiquities from unnecessary damage and of taking such opportunities of fresh excavation as occurred. The five months which Hall spent in southern Babylonia were a happy memory: with what zest he roughed it at the head of his cosmopolitan crew round Ur, Al-'Ubaid and Shahrain may be divined from the pages of *A Season's Work at Ur*.

It was characteristic of Hall to throw himself, at the age of forty-five, into the adventure of prospecting among the mounds of Babylonia with the unaffected enthusiasm of youth. As the contemporaries of his boyhood had been able to foresee the man, so those who knew him in later years could not fail to discern the boy still young beneath the surface of the savant. The charm which won so many friends sprang from this unspoiled youthfulness of spirit. Whatever his surroundings, wherever the conversation turned, Hall was never bored. Whether it was a serious discussion among scholars or a Twelfth Night celebration to amuse the children of his friends, his whole energy was bent to the business of the moment. This infinite capacity for interest was the gift which impressed even the most casual acquaintances. The versatility of his mind gave distinction to his talk; but it was the ingenuous sincerity of his character which gained the confidence of strangers and the devotion of his friends. Growing familiarity only made his solid worth more manifest. There can have been few who were thrown into frequent contact with him whose feelings did not ripen into those of friendship. To the staff of his department in the Museum, at least in the eyes of an observer from outside, he appeared to be something like an elder brother—honoured and respected, indeed, but with a warmth not to be commanded by a mere official chief. Doubtless at times the defects of his qualities were trying. Impetuous energy made his demands severe, and an incorrigible untidiness which is the penalty of speed might invite well-founded criticism. But such shortcomings went for nothing in the presence of his invincible good-will towards every scholar of the younger generation whose ideals enlisted his respect. His loyalty to his juniors was staunch, and his unconcealed joy at their successes was a measure of the generosity with which he put help and opportunities in their way.

On formal occasions a natural shyness made Hall appear pompous, and sometimes even brusque. Public speaking he abhorred, and even his lectures were marred by the effects of nervousness. On the platform or in the chair he was not at ease, and the happiest memories of him which remain have a more intimate environment. Hall was a bachelor, to speak of whose life at home is no unwarranted intrusion; for his home was the company of his innumerable friends. Whether a few kindred spirits had gathered in a private house or scholars were meeting at one of those quiet dinners over which his death has cast a cloud, the "zwangloses Beisammensein" was the setting which showed him at his best. There his qualities had scope. With his inexhaustible interest and his untiring capacity to provide good conversation and enjoy it, in such society he inevitably became a central figure. And in that position, always without seeking it, he found himself wherever he went. At international gatherings the stiffness and reserve which are the marks of such affairs vanished before his honest cordiality. One who was privileged to be present at his dinner-parties during the Congress of Orientalists at Oxford in 1928 will not readily forget the speed and certainty with which his unaffected friendliness spread an atmosphere of personal good-will over companies whose members had sometimes scarcely met.

To his closer friends his loss is irreparable. Unflagging energy of mind made him a companion who never palled. To spend an evening with Hall among his intimates was an experience which left men even many years his juniors feeling the younger for contact with his infectious *joie de vivre*. Whatever the subject, he threw himself into it with zeal. Wide reading in the many literatures which his peculiar gift for languages made accessible and an extensive knowledge of men and places gained on his frequent journeys about Europe and the Mediterranean stocked his capacious memory with a fund of curious information. And over all of it was cast the freshness of a mind whose humanity could make every subject live and whose good nature won the sympathy of every hearer. Despite his expansive geniality, Hall's conversation was never trivial. He was always in earnest: indeed, his outspoken criticism when he disapproved might occasionally have stirred resentment in circles which did not know it for the honest expression of a character still touched by the aptness to prejudice of youth. But, however forthright he might show himself at times, his nature was sensitive, and one which respected susceptibilities. The firmness with which he held his opinions was no more than a mark of the intensity of his mind. In all the range of his conversation—from the dawn of history to the problems of to-day—what he said he meant, and meant so sincerely that it was always worth the saying. The vigour of his personality, the catholicity of his interests and the unfailing good humour of his character—those are the qualities whose loss his friends lament. They found in him a scholar to admire, but a scholar who had not ceased to be a man—a man made lovable by the deep humanity which always was the essence of his being.

HUGH LAST.

BIBLIOGRAPHY: GRAECO-ROMAN EGYPT

A. PAPYRI (1929-1930)

The work is again divided as follows:

- § 1. Literary Texts. H. J. M. MILNE, British Museum.
- § 2. Religion, Magic, Astrology (including texts). A. D. NOCK, Harvard University, Cambridge, Mass., U.S.A.
- § 3. Publications of non-literary texts. H. I. BELL, British Museum.
- § 4. Political History, Biography, Administration, Topography and Chronology. J. G. MILNE, 20 Bardwell Road, Oxford (Ptolemaic and Graeco-Roman Periods), and N. H. BAYNES, Fitzwalters, Northwood, Middlesex (Byzantine and Arab Periods).
- § 5. Social Life, Education, Art, Economic History, Numismatics and Metrology. J. G. MILNE (Ptolemaic and Graeco-Roman), and N. H. BAYNES (Byzantine and Arab).
- § 6. Law. F. DE ZULUETA, 37 Norham Road, Oxford.
- § 7. Palaeography and Diplomatic. Miss M. E. DICKER, 21 Elm Bank Mansions, London, S.W. 13.
- § 8. Lexicography and Grammar. R. MCKENZIE, St. John's College, Oxford.
- § 9. General Works, Bibliography, General Notes on Papyrus Texts. H. I. BELL.
- § 10. Miscellaneous and Personal. H. I. BELL.

The authors wish jointly to express their gratitude to all those scholars who have sent them off-prints of their articles, a kindness which has greatly facilitated the work of compiling this bibliography.

The following abbreviations have been used in quoting periodicals:

- | | |
|--|---|
| <p><i>A.J.A.</i> = <i>American Journal of Archaeology</i>.
 <i>Am. Hist. Rev.</i> = <i>American Historical Review</i>.
 <i>Am. Journ. Phil.</i> = <i>American Journal of Philology</i>.
 <i>Anc. Egypt</i> = <i>Ancient Egypt</i>.
 <i>Ann. Serv.</i> = <i>Annales du Service des Antiquités de l'Égypte</i>.
 <i>Arch. f. Rel.</i> = <i>Archiv für Religionswissenschaft</i>.
 <i>Archiv</i> = <i>Archiv für Papyrusforschung</i>.
 <i>Arch. R. u. W.</i> = <i>Archiv für Rechts- und Wirtschaftsphilosophie</i>.
 <i>Ä.Z.</i> = <i>Zeitschrift für ägyptische Sprache und Altertumskunde</i>.
 <i>B.C.H.</i> = <i>Bulletin de correspondance hellénique</i>.
 <i>Boll. fil. class.</i> = <i>Bollettino di filologia classica</i>.
 <i>Bull. bibl. et péd.</i> = <i>Bulletin bibliographique et pédagogique du Musée Belge</i>.
 <i>Bull. Soc. Arch. d'Alex.</i> = <i>Bulletin de la Société Royale d'Archéologie d'Alexandrie</i>.
 <i>B.Z.</i> = <i>Byzantinische Zeitschrift</i>.
 <i>Chron. d'Ég.</i> = <i>Chronique d'Égypte</i>.
 <i>Cl. Phil.</i> = <i>Classical Philology</i>.
 <i>Cl. Quart.</i> = <i>Classical Quarterly</i>.
 <i>Cl. Rev.</i> = <i>Classical Review</i>.
 <i>Cl. Weekly</i> = <i>Classical Weekly</i>.
 <i>C.-R. Ac. Inscr. et B.-L.</i> = <i>Comptes-Rendus de l'Académie des Inscriptions et Belles-Lettres</i>.
 <i>D. Lit.-Z.</i> = <i>Deutsche Literaturzeitung</i>.
 <i>G.G.A.</i> = <i>Göttingische Gelehrte Anzeigen</i>.
 <i>Hist. Z.</i> = <i>Historische Zeitschrift</i>.
 <i>Jahrb. f. Lit.</i> = <i>Jahrbuch für Liturgiewissenschaft</i>.
 <i>J.H.S.</i> = <i>Journal of Hellenic Studies</i>.</p> | <p><i>Journal</i> = <i>Journal of Egyptian Archaeology</i>.
 <i>Journ. Sav.</i> = <i>Journal des Savants</i>.
 <i>J.R.S.</i> = <i>Journal of Roman Studies</i>.
 <i>K.V.G.R.</i> = <i>Kritische Vierteljahresschrift für Gesetzgebung und Rechtswissenschaft</i>.
 <i>L.Q.R.</i> = <i>Law Quarterly Review</i>.
 <i>N.G.G.</i> = <i>Nachrichten der Gesellschaft der Wissenschaften zu Göttingen</i>.
 <i>O.L.Z.</i> = <i>Orientalistische Literatur-Zeitung</i>.
 <i>Phil. Woch.</i> = <i>Philologische Wochenschrift</i>.
 <i>Rech. sc. relig.</i> = <i>Recherches de science religieuse</i>.
 <i>Rev. arch.</i> = <i>Revue archéologique</i>.
 <i>Rev. belge</i> = <i>Revue belge de philologie et d'histoire</i>.
 <i>Rev. de phil.</i> = <i>Revue de philologie</i>.
 <i>Rev. d'hist. eccl.</i> = <i>Revue d'histoire ecclésiastique</i>.
 <i>Rev. ét. anc.</i> = <i>Revue des études anciennes</i>.
 <i>Rev. ét. gr.</i> = <i>Revue des études grecques</i>.
 <i>Rev. hist. dr.</i> = <i>Revue de l'histoire du droit français et étranger</i>.
 <i>Rev. hist. rel.</i> = <i>Revue de l'histoire des religions</i>.
 <i>Rhein. Mus.</i> = <i>Rheinisches Museum für Philologie</i>.
 <i>Riv. di fil.</i> = <i>Rivista di filologia classica</i>.
 <i>Sitzungsb.</i> = <i>Sitzungsberichte</i>.
 <i>Symb. Oslo.</i> = <i>Symbolae Osloenses</i>.
 <i>Theol. Lit.-Z.</i> = <i>Theologische Literaturzeitung</i>.
 <i>Z.f. Kirchengesch.</i> = <i>Zeitschrift für Kirchengeschichte</i>.
 <i>Z. f. Numism.</i> = <i>Zeitschrift für Numismatik</i>.
 <i>Z. neut. Wiss.</i> = <i>Zeitschrift für neutestamentliche Wissenschaft</i>.
 <i>Z. Sav.</i> = <i>Zeitschrift der Savigny-Stiftung (Romanistische Abteilung)</i>.</p> |
|--|---|

1. LITERARY TEXTS.

General. Many new readings, the result of personal inspection of the papyri, are collected by G. MANTUEFFEL, *De opusculis Graecis Aegypti e papyris ostracis lapidibusque collectis*, forming no. 12 of *Travaux de la Société des Sciences et des Lettres de Varsovie*, 1930. The work is divided into four chapters, viz.: Texts from inscriptions; Hymns, aretologies, etc.; Mimica, etc.; Lyrica, etc. Full bibliographies are attached to each text, but unfortunately no translation is given. An ineditum is printed at p. 150 (P. Berol. 13876, recto), a fragment of mime. See also § 2.

A fresh instalment (the last, fasc. 4, was published in 1914) of the *Papyri Iandanae* has appeared, entitled *Literarische Stücke und Verwandtes*, 1931, edited by JOSEF SPREY. Included are: *Il.* I, 94-112; *Od.* IX, 194-235; XII, 31-57; Iambics; *Μενάνδρου γνῶμαι* already published; Parthenius?, Elegiacs; Isocrates, *Panegyricus*, 18-22; Hyperides, part of Brit. Mus. Lit. Pap. 132; Scrap of Isaeus?; Work on parts of body, 1st cent. B.C.; Grammatical; De Sphaera; Colour and veterinary recipes; Cicero, *In Verrem*, II, 2, the oldest Latin papyrus found in Egypt, beginning of 1st cent. See also § 2.

TARR's newly published volume of *Greek Ostraca* (see § 3) contains two literary pieces from the Flinders Petrie collection, no. 408, *Il.* I, 1-127; no. 405, *Gnomai Monostichoi* of Menander.

MANTUEFFEL also writes in Polish on "Papyrologja jako Nauka Pomocnicza Historji" in *Przegląd Historyczny*, VIII (1929), 70-90.

POWELL and BARBER, *New Chapters* (2nd ser.), is reviewed by J. GEFFCKEN in *Phil. Woch.*, 709-14.

Epic. BOLLING reviews in *Cl. Phil.*, XXV (1930), 193-201, CANTARELLA's *L'edizione polistica di Omero*. Important.

A new edition of Hesiod's *Theogony* by F. JACOBY, reviewed in *J.H.S.*, I (1930), 368-9, uses the papyrus material.

The long-awaited publication of the Antinoe papyrus of *Theocritus* has at last taken place: HUNT and JOHNSON, *Two Theocritus Papyri*, Egypt Exploration Soc., 1930. The second papyrus is P. Oxy. 2064. Unfortunately the text fails us just where we most need it, e.g. in the Aeolica and in the recovered ending to the Heracliscus. However, the results are extremely important and are clearly brought out by MAAS in *Gnomon*, VI (1930), 561-4. Reviews also by GOW in *Cl. Rev.*, XLIV, 229-30, and CESSI in *Aegyptus*, XI (1931), 88-91. Also *Times Lit. Suppl.*, 1931, 115.

W. MOREL makes restorations of Brit. Mus. *Bassarica* in *Archiv*, IX (1930), 222-3. A further identification is made by MAAS in *B.Z.*, XXIX, 383.

Elegiac. Sensational results have followed LOBEL's examination of the *Iambi* papyrus (P. Oxy. 1011) under ultra-violet light, published in the *Bodleian Quarterly Record*, VI (1930), 138-42. Large tracts of the poem are now made intelligible for the first time.

In *Aegyptus*, x, 152-79, F. AGENO examines the various suggestions for the restoration of l. 2 of the *Coma Berenices*. LAVAGNINI's translation of Catullus's poem is reviewed by E. DIEHL in *Phil. Woch.*, 1930, 227-8.

W. E. J. KUIFER restores in *Studi ital. di fil. class.*, VII, 127-9, *βουπόρος Ἀπρινός* [s. διορύ]σσεο, while, on the same tack, KALINKA in *Anzeiger Wien. Ak.*, 1929, 267-9, proposes *Ἀπρινός* [η ἔγγυ]ς σεο and [θρη]σσα Κ[α]ρωπίαν ναίεις ἀ[γ]γαλῶ. In the same poem ROSTAGNI would read [ἰππεύς] ἰοζώνου Δοκρικὸς Ἀπρινός in *Riv. di fil.*, VII (1929), 522-3. See also LENCHANTIN DE GUBERNATIS, *Catullo e la Chioma di B.*, in *Studi ital. di fil. class.*, VII, 113-26.

W. MOREL writes on "Die Gründung von Messina" in *Italien*, III, 334-5.

G. COPPOLA on "Callimachus Senex" in *Riv. di fil.*, LVIII (1930), 273-91, deals with the epilogue to the *Aitia* and the Epinicia for Berenice and for Sosibius.

In *Cl. Quart.*, XXIV (1930), 109-12, W. M. EDWARDS discusses "The Callimachus Prologue and Apollonius Rhodius." He finds the latter's poem referred to in the words [δρύν] πολὺ τὴν μακρὴν, while the rest of the line, *δρύνια Θεομοφόρος*, alludes to the poem *Demeter* by Philetas. If we read *εἴν* instead of *δρύν*, as VOGLIANO suggests to me, the likelihood would become a certainty. EDWARDS, in the same article, also makes important readings in the Brit. Mus. scholia to the *Aitia*. Review by ROSTAGNI in *Riv. di fil.*, VIII, 257-8.

In *Riv. di fil.*, VII (1929), 457-77, E. BIGNONE finds echoes of Callimachus in Vergil and Horace—*Nuovi spunti di poesia ellenistica in Orazio*.

I have not seen COPPOLA's *Archiloco o imitazione ellenistica?* in *Studi ital. di fil. class.*, VII, 155-68.

Lyric. An important article by LOBEL in *Hermes*, LXV (1930), 356-65, subjects to scrutiny the *Corinna* papyrus. L. distinguishes three poems, and would assign Corinna herself to the period 350-250 B.C. in accordance with the orthography of her poems.

LOBEL's *Alcaeus* is reviewed by R. PFEIFFER in *Gnomon*, vi, 316-21, and by BOLLING in *Language*, v (1929), 276-82.

In *Rend. Ist. Lomb.*, 1929, 827-38, L. A. STELLA writes on the new *Erinna* fragments.

Drama. An important review by KÖRTE of JENSEN's *Menandri Reliquiae* appears in *Phil. Woch.*, 1930, 833-42.

Other reviews are in *Rev. de phil.*, iv, 409-10, by COLLART, and in *Am. Journ. Phil.*, 1930, 83-4, by L. A. POST.

New scraps of Menander's *Georgos* are published by MILNE in the *Journal*, xvi (1930), 187-92, from a 4th cent. papyrus book, P. Lond. Inv. No. 2823 a. VOGLIANO informs me it is a quite different MS. from P.S.I. 100.

In *Rev. ét. anc.*, xxxi (1929), 314-26, P. BOYANCÉ in "Deux remarques sur L'Eunuque" uses evidence of Menander papyri.

Fourteen lines of a "Frammento della Commedia Antica" are published by Norsa and VITELLI in *Bull. Soc. Arch. d'Aless.*, 25 (1930), 1-9. GALLAVOTTI in *Riv. di fil.*, viii (1930), 209-15, would assign it to the Middle Comedy, perhaps the *Διὸς γοῖαι* of Philiscus. So too KÖRTE in *Hermes*, lxxv, 472-6.

There is an appendix on "Euripides in the Papyri" in W. N. BATES, *Euripides*. Reviewed in *J.H.S.*, i, 365.

MANTEUFFEL, in *Hermes*, lxxv, 123-8, interprets l. 57 of the *Charition* mime, P. Oxy. 413, as stage directions, and gives new readings in the London mime, ll. 1-8 (Brit. Mus. Inv. No. 1984). Cf. also MANTEUFFEL in *Eos*, xxxii (1929), 40-2.

A list of stage properties for mimes is edited by MANTEUFFEL from Berlin Pap. 13927 in *Eos*, xxxii, 27-33, followed, 33-40, by remarks on the Brit. Mus. *Πειραζομένη* (Lit. Pap. 52).

VOGLIANO re-edits in *Gnomon*, vi, 113-5, the "new comedy" fragments published by VITELLI last year in *Studi ital.*

A dissertation (Lund University) by URBAN URSING, "Studien zur griechischen Fabel," is commended by A. HAUSRATH in *Phil. Woch.*, 1931, 41-4.

The text of *Babrius* is discussed by O. IMMISCH in *Rhein. Mus.*, lxxix (1930), 153-69, who compares the Bouriant papyrus with the Codex Athous to the advantage of the former.

In *Aegyptus*, x, 255-6, W. A. OLDFATHER sees in P. Grenf. II. 84 a variation of the Aesopic fable called 'Ανδροπόροσ.

A work on "Il papiro Golenischef," i.e. the Vita Aesopi, by F. POTENTE (Napoli, Cimmaruta, 1930), is reviewed unfavourably by A. HAUSRATH in *Phil. Woch.*, 1931, 65-7.

A fragment of the Vita Aesopi in Uigur from Central Asia is published by L. RÁSONYI NAGY in *Byz.-Neogr. Jahrb.*, vii (1930), 429-43.

KNOX reviews F. JUNG's *Hipponax Redivivus* in *Gnomon*, vi, 321-4.

History. A. W. GOMME reviews F. HOMMEL, *Helicia: Untersuchungen zur Verfassung und Prozessordnung des athenischen Volksgerichts, insbesondere zum Schlussteil der 'Aθ. Πολ. des Aristoteles*, in *Cl. Rev.*, xlv, 64-6.

In *Atene e Roma*, x (1929), 145-53, MOMIGLIANO writes on P. Oxy. 1365, "La genealogia degli Ortogoridi."

The 2nd volume of JACOBY's *Fragmente der griech. Historiker* includes P. Oxy. 12, 1613, 2082 and other papyri.

In *Cl. Phil.*, xxv, 183-4, L. A. POST restores Phlegon (P. Oxy. 2082).

A. REHM in *Philologus*, lxxvi (1930), 118-22, makes textual suggestions for 'Aθ. Πολ. 47, 48.

Mathematics. In *Cl. Phil.*, xxv (1930), 373-5, K. VOGEL writes on "Die algebräischen Probleme des P. Mich. 620."

Music. In *Chron. d'Ég.*, v (1930), 278-85, C. PRÉAUX writes on "Quelques Échantillons papyrologiques de Musique grecque."

Oratory. The first papyrus of *Dio Chrysostom* is published by MILNE in *Journal*, xvi (1930), 187-92, from a 4th (?) cent. codex, P. Lond. Inv. No. 2823. It contains parts of Orr. xiv and xv with unknown fragments. BOLLING, in a letter to me, restores ll. 106-8 from *Od.* xii, 184-5.

A. REHM restores Lysias (P. Oxy. 1606, ll. 149-52) in *B.Z.*, xxx, 155-7.

In *Cl. Rev.*, xlv, 62, D. TARRANT proposes to read *ἀντιδικήσας* in Hyperides, *Epitaphios*, § 20.

Law. SEGHE publishes in *Studi Bonfante*, iii (1930), 421-36, "Tre papiri giuridici inediti."

Philosophy. MOMIGLIANO quotes papyri in his article "Sul Pensiero di Antifonte il Sofista" in *Riv. di fil.*, viii (1930), 129-40.

In *N.G.G.*, 1930, 1-32, PHILIPPSON continues his "Neues über Epikur und seine Schule," commenting on VOGLIANO's *Epicuri Scripta*. Cf. ROSTAGNI in *Riv. di fil.*, VIII, 256-7.

A crux in Epicurus' letter to Menoikeus is treated by PHILIPPSON in *Phil. Woch.*, 1931, 61-4.

The author of P. Oxy. 1367 is identified by PHILIPPSON with Heracleides the epitomator of Sotion—*Nachtrag zu den Panaetiana in Rhein. Mus.*, LXXIX (1930), 406-10.

The fragment of Logis, P.S.I. 1095, is related to Aristotle's *Topica* by PHILIPPSON in *Riv. di fil.*, VII (1929), 495-506. SOLMSEN and VOGLIANO develop the argument, *ib.*, 507-10, 511-12.

A lucid account of the Library of Herculaneum is given by JENSEN in *Bonner Jahrbücher*, CXXXV (1930), 49-61.

In *Phil. Woch.*, 1930, 593-9, J. BLATT reviews C. F. KUMANIECKI, *De Satyro Peripatetico* (Cracow, 1929). ROMANCE. F. ZIMMERMANN examines anew the *Chione* fragments in *Aegyptus*, XI (1931), 45-56.

Chariton is the subject of a study by B. E. PERRY in *Am. Journ. Phil.*, 1930, 93-134.

2. RELIGION, MAGIC, ASTROLOGY.

(Including Texts.)

General. FR. PFISTER, *Die Religion der Griechen und Römer mit einer Einführung in die vergleichende Religionswissenschaft. Darstellung und Literaturbericht* (1918-1929/30. *Bursians Jahresberichte*, 229, 1930. Pp. viii+424), is a survey of uncommon interest and penetration, full of constructive criticism and suggestive synthesis. The special field of this bibliography is admirably handled.

H. GRESSMANN, *Die orientalistischen Religionen im hellenistisch-römischen Zeitalter* (Berlin: De Gruyter, 1930. Pp. 179, 58 Abb., 1 Karte, 3 M.), published posthumously by A. VON GALLING, is a general treatment of the field, in which Graeco-Egyptian syncretism receives due attention. Reviewed by W. BAUER, *Theol. Lit.-Z.*, LV (1930), 434-5.

KLEINKNECHT—G. KITTEL—WEINREICH, *IIANGÆION*, is reviewed by H. KITTEL, *ib.*, 386-7.

WERNER PEEK, *Der Isishymnos von Andros und verwandte Texte* (Berlin: Weidmann, 1930. Pp. vi+159. 9.50 M.), fills a long-felt want and fills it excellently: we have an assured text, the parallels, and a good linguistic commentary (e.g. the remarks, pp. 33 f., on the omission in the Andros hymn of *alles rein Referierende, vom Pathos oder Ethos aus nicht zu erfassende*). *A propos* of the problem of the repetitions (p. 158), we should perhaps compare the curious way in which texts in the magic papyri repeat a refrain with monotonous emphasis: they afford excellent parallels to the hymn's predilection for long words. HERMANN FRÄNKEL, in a review *G.G.A.*, CXCH (1930), 198-201, reads *χαράξαι* in l. 11 of the Andros text, *ἀνθε[σιν] ἡβας* in l. 17, and in ll. 158 ff. *ἴσις ἐγὼ πολέμου κρυερὸν νέφος ἔρκεσι(ν) ἐργω*, | *ἀμφίβαλον* (δ' *ἀστοῖσι* *κακῶν ἀλκτῆρια*) *μόχθων*. | *(πάντες ἐμὲ) κληῖζουσιν πολυκτεάνων βασιλείαν*. I suspect some serious corruption in 41-4. The Cyme hymn has been discussed by A. SALAČ, *Listy filologické*, LVI (1929), 76-80, known to me from *Phil. Woch.*, L (1930), 1194: it would appear that S. maintains that the spirit of the inscription is Hellenistic not Egyptian (as is no doubt substantially true), and that it is a literary product of the end of the 2nd or beginning of the 1st century B.C. It is however quite possible that the version in Diodorus Siculus, I, 27, is due to Hecataeus of Abdera (as SCHWARTZ maintained, *Rhein. Mus.*, XL, 229): it suited his theory and may well belong to the early formation period of Graeco-Egyptian syncretism.

We may here mention F. LEVY, *Der Geburtstag des Freundes, eine Studie zu Tibull 1, 7* (*Studi ital. di fil. class.*, VII (1929), 101-11, 169-70), on the praises of Osiris in that poem. Thanks to Messalla, Tibullus knew the religion in its native land.

E. PETERSON, *ΕΙΣ ΘΕΟΣ*, is warmly praised by O. WEINREICH, *Phil. Woch.*, L (1930), 1088-90, W. E. CRUM, *Journ. Theol. Stud.*, XXXI (1930), 415-8, both giving addenda: another in TH. SCHNEIDER, *Die Amida-Inschrift und Irenäus, Elenchos*, IV, 22, 3 (*Z. neut. Wiss.*, XXIX, 155-8).

BILABEL, *Die gräko-ägyptischen Feste*, is warmly praised by WILCKEN, *Archiv*, IX, 241 (cf. § 3) in the course of his *Urkunden-Referat*. We may note therein p. 239 on no. 4 of the Demotic Zeno papyri with the royal oath "By the Psai of the Pharaoh Ptolemaios" and the relation of the Psai to *δαίμων*, and p. 247 on a document from Lycopolis (the first of the Berlin papyri edited by S. MÖLLER) by Emperors, consuls, and two eponymous priests of the Emperor. This text should be added to the evidence discussed by L. R. TAYLOR, *Alexander and the Serpent of Alexandria* (*Cl. Phil.*, XXV (1930), 375-8), with a revised translation (by R. C. Blake) of the Armenian Alexander-romance, I, 32.

N. GREIFL, *Über eine Ptolemäerinschrift* (*Philol.*, LXXXV (1930), 159-74), gives an important new restoration of O.G.I. 16 and removes thereby our one dedication to Sarapis under Soter. U. WILCKEN,

Zur Sarapinsinschrift von Halikarnass (*Archiv*, IX (1930), 223-5), gives substantive approval to the restoration, but points to indisputable evidence for the cult at the time.

FR. W. VON BISSING, *Silberfigürchen eines Sarapis* (*Bulletin van de vereeniging der kennis van de antieke beschaving*, V, 6-9), publishes a figure bought in Egypt in 1908. On the connexion of the art type of Christ with Sarapis cf. THULIN, *Röm. Mitt.*, XLIV, 219 (not yet accessible). *A propos* of the "footprint of Sarapis," cf. O. WEINREICH, *Ein Spurzäuber* (*Arch. f. Rel.*, XXVIII (1930), 183-4).

M. ROSTOVITZEFF, *L'empereur Tibère et le culte impérial* (*Rev. hist.*, CLXIII (1930), 1-26; cf. § 4), throws incidental light on the meaning of *εἰκὼν* in Egyptian texts.

O. MICHEL, *Was spricht der Aristeebrief über Gott?* (*Theol. Stud. u. Krit.*, CII (1930), 302-6), well characterizes the unaggressive piety of this document, its failure to use *κύριος* save in an O.T. quotation (§ 155), and its recognition of Stoic affinities. G. STÄHLIN, *Josephus und der Aristeebrief* (*ib.*, 324-31), is interesting on J.'s use of this source.

S. LURIA, *Die Ersten werden die Letzten sein* (*Klio*, XXI (1929), 405-31), throws light on the "Potter's Oracle."

F. J. DÖLGER, *Die Bedeutung von βασιλευσθα in einem Papyrustext des Jahres 152-151 v. Chr.* *Der Text kein Zeugnis für eine ägyptische Taufe* (*Antike und Christentum*, II (1930), 57-62), discusses the well-known Serapeum *τὸν βασιλευσθα*, and supports the view that *β.* and *σωθῆναι* are both used in a secular sense, giving an excellent parallel from Rufinus, *Historia Monachorum* (Greek text), c. 34, p. 96 Preuschen. In his *Die Gottesweihe durch Brandmarkung oder Tätowierung im ägyptischen Dionysoskult der Ptolemäerzeit* (*ib.*, 100-6), he discusses the tradition about Philopator and the Jews.

P. JOUGUET, *Dédicace grecque de Médamoud* (*Bull. Inst. fr. d'arch. or.*, XXXI (1930), 1-29), is inaccessible to me.

P. COLLART, *Le sanctuaire des dieux égyptiens à Philippi* (*B.C.H.*, LIII (1929), 70-100), describes a sanctuary on the acropolis at Philippi (with five cellae: dedications to Horus, Apollo, Harpocrates; Harpocrates, Isis and Sarapis; *θεοί*; table and four benches, the latter *ex imperio* by a doctor, dedicated *Isidi reginae*. Isis is emphasised: Kallinikos calls himself in one inscription "priest of Isis and Sarapis," in another simply "priest of Isis." No dedication to Anubis. A statuette of Telesphorus. C. urges that the cult of the Egyptian deities was here directed to them largely as deities of healing, and remarks that the presence of the cult at Philippi shows again the importance of the highways of commerce in the spread of religions. A good study).

T. L. SHEAR, in his *Excavations in the theatre district and tombs of Corinth in 1929* (*A.J.A.*, 2nd ser., XXXIII (1929), 515-46), mentions (p. 519) the discovery on the piece of a shaft of a small marble column in the theatre of an incised dedication to Isis and Sarapis.

L. ROBERT, *Isis Eleuthera* (*Rev. hist. rel.*, XXVIII (1928), 56-9), reads *ἐν Μύποις τῆς Αὐκίας κεδνὴν Ἐλευθερίαν* in P. Oxy. 1380, 79 f., explaining it as an identification with the local deity Eleuthera, for whom he gives valuable material. *A propos* of this text, I may refer to P. MONTE's observations, *Rev. bibl.*, XXXIX (1930), 11, 15, 20, in his *Tanis, Avaris, et Pi-Ramsès* (pp. 1-28), on the Egyptian habit of adding to the name of a deity that of the city appertaining to him or her *even outside that city*. The papyrus gives a generalisation resulting from contact with Greeks, like the generalisation of the admission of rulers to a place in the existing temples of the land.

E. PETERSON, *Die Einholung des Kyrios* (*Zeitschr. system. Theol.*, VII (1929), 682-702), *a propos* of 1 Thess. iv. 13 ff., gives a most interesting collection of papyrus and other texts describing the welcoming of a ruler and makes excellent use of them for New Testament exegesis.

The Loeb Philo by F. H. COLSON and G. H. WHITTAKER, vols. I, II, is deservedly praised by O. STÄHLIN, *Phil. Woch.*, I (1930), 225-7, as is also M. ADLER, *Studien zu Philon von Alexandria*, *ib.*, 867-71 (on the development of the allegorical method in Philo), and by H. WINDISCH, *Theol. Lit.-Z.*, LV (1930), 509-10. O. STEIN, *Die allegorische Exegese des Philo aus Alexandria*, is reviewed by F. H. COLSON, *Journ. Theol. Stud.*, XXXII (1930), 108-9, [A.], *Rev. bibl.*, XXXIX, 142-3, O. MICHEL, *Theol. Lit.-Z.*, LV (1930), 55-6; H. LEWY's excellent *Sobria ebrietas: Untersuchungen zur Geschichte der antiken Mystik* (*Z. neut. Wiss.*, Beih. 9), by H. KOCH, *ib.*, 339-42 (disputing, as does LEBRETON, *Rech. sc. relig.*, XX (1930), 160-2, Lewy's thesis that Cyprian has Philo's phrase *via* Origen and holding that Cyprian may have used Philo directly), and NOCK, *Journ. Theol. Stud.*, XXXI (1930), 308-10.

Hermetism. M. E. LYMAN, *Hermetic Religion and the religion of the fourth Gospel* (*Journ. Bibl. Lit.*, XLIX (1930), 265-76), notes parallels and differences, but does not go deep. In this connexion we may mention C. H. KRAELING, *The fourth Gospel and contemporary religious thought* (*ib.*, 140-9), MILLAR

BURROWS, *The original language of the Gospel of John* (ib., 95-139: judicious and admirable. We are nowhere near the end of the discussion, but I may be allowed to express the conviction that the Gospel is Semitic but not Jewish), H. ODEBERG, *The fourth Gospel interpreted in its relation to contemporaneous religious movements in Palestine and the Hellenistic Oriental world* (Pt. 1, 1929. Pp. 336. Reviewed with his *3 Enoch* by LAGRANGE, *Rev. bibl.*, xxxix, 452-8), and E. BÖCKLEN, ΜΟΝΟΓΕΝΗΣ (*Theol. Stud. u. Krit.*, CI (1929), 55-90. He makes out a good case for the meaning ἐκ μόνου γεννηθείς as well as μόνος γεννηθείς. Cf. his discussion, p. 75 of the symbolism of the phoenix, 76 of the scarabaeus, 77 of primal bisexual beings).

R. REITZENSTEIN, *Noch einmal Eros und Psyche* (*Arch. f. Rel.*, xxviii (1930), 42-87), in the course of his argument for an Indian origin of the story, returns (pp. 66-71) to the place of ψυχὴ in C.H., x, the Abraxas cosmogony and the Mithrasliturgie.

W. B. KRISTENSEN, *De goddelijke heraut en het woord van God* (*Meded. kon. Akad. Amsterdam, Afd. letterk.*, Deel 70, Serie B, No. 2, pp. 26), is probably interesting, to judge from a review by H. WINDISCH, *Theol. Lit.-Z.*, lv (1930), 602-3.

R. REITZENSTEIN, *Die Vorgeschichte der christlichen Taufe*, mit Beiträgen von L. TROJE (Leipzig u. Berlin: Teubner, 1929. Pp. viii+399. 14 M.), is an important work, the significance of which lies largely outside this bibliography. We must, however, here remark on the very interesting parallels to *Corp. Herm.*, I and XIII, and to the end of the *Aesclepius*, afforded by a passage of Philo, *Quaest. in Exodum*, II (à propos of the ascent of Moses on the mountain), discussed by him in ch. 3; we have here the transmutation of human nature, and the passing into the divine by an ascent. To an interesting review by H. H. SCHAEFER, *Gnomon*, v (1929), 353-70, REITZENSTEIN replies *Arch. f. Rel.*, xxvii (1929), 241-77: both should be read.

W. THEILER, *Die Vorbereitung des Neuplatonismus* (*Problemata*, I. Berlin: Weidmann, 1930. Pp. x+166), a solid contribution to philosophic history, includes, pp. 125-34, a discussion of the relation of Hermetic thought to Posidonius.

Astrology. CUMONT, *Cat. cod. astr. gr.*, VIII, 1, is highly praised by W. KROLL, *Phil. Woch.*, L (1930), 433-5.

J. FREUNDORFER, *Die Apokalypse des Apostels Johannes und die hellenistische Kosmologie* (*Biblische Studien*, xliii, 1929. Pp. xiv+148. 6 M.) is reviewed by E. NESTLE, *Phil. Woch.*, L (1930), 97-9 (with praise and agreement in F.'s criticisms of some of Boll's conclusions), and E. B. ALLO, *Rev. bibl.*, xxxix (1930), 599-602.

Papyri Iandanae, fasc. v, by J. SPREY, includes no. 88, pp. 207-9 (4th cent.: two horoscopes); 89, pp. 209-10 (horoscope: date of birth 3 Dec. 227 A.D.).

Alchemy. *Catalogue of Latin and vernacular alchemical Manuscripts of Great Britain and Ireland dating from before the XVI century* by DOROTHY WALEY SINGER, assisted by ANNIE ANDERSON and by ROBINA ADDIS. Vol. II (Brussels: Lamertin, 1930. Pp. viii+331-755) continues this important survey.

Magic. P. COLLART, *Une nouvelle tabula defixionis d'Égypte* (*Rev. de phil.*, 3^e Sér., LV (1930), 248-56), publishes a new text in a writing which he associates with the 5th century A.D.: it includes familiar nomina, starting with a conjuration by Brimo reminiscent of the Hekate hymn in the great Paris Papyrus. The spell is intended to check the anger of one Origen. The most interesting phrase is l. 36 ὅτι σε ἐπικαλοῦμαι τὸν μέγαν σωμαροειδῆ ἀσώματον, τὸν τὸ φῶς κατασπῶντα, τὸν κύριον τῆς πρώτης γενέσεως ἰωήτα ἐοικῶτα. I suspect that σωμαροειδῆ ἀσώματον is due to pleasure in combining antithetic attributes of deity, as in *Corp. Herm.*, v, 11, and to Jewish ideas (man is made in God's image, but God has no body), rather than to the philosophic analogies discussed by Collart, p. 255.

I am informed that *Papyri Iandanae*, fasc. v (1931), by J. SPREY, not yet accessible to me, includes no. 72, pp. 172-5 (6th century), model for Christian epitaph or amulet; no. 87, pp. 203-7 (4th century, first half), a piece of magic to do harm, very like Audollent, *Defixionum tabellae*, no. 188.

K. PREISENDANZ, *Unbekannte Zauberpapyri in Deutschland* (*Forsch. u. Fortsch.*, VI (1930), 63-4), describes P. Berol. 11737, 13895 (very interesting Jewish element, and final prayer like the Mimant papyrus prayer and the Anaphora of Serapion), P. Lips. 9418, 46429.

He has reviewed A. S. HUNT's *Incantation in the Ashmolean Museum* in *Phil. Woch.*, L (1930), 748-50, suggesting (probably rightly) that Θερρή is to be read as a proper name, and (what is more open to doubt) that the text is a διάκος, written by a third person (can σνκαρμείζον be so interpreted?).

CAMPBELL BONNER, *The numerical value of a magical formula* (*Journal*, XVI (1930), 6-9), very cleverly settles some problems of the isopsephic equivalents of nomina barbara.

In his *Notes on the Paris Magical Papyrus* (*Cl. Phil.*, xxv (1930), 180-3) BONNER reads l. 2329 καὶ Σφύγγος ἀνάγκη and interprets ἀντίχειρά σου κρᾶσι.

TH. HOFFNER, *Das Diagramm der Ophiten* (*Charakteria Alois Rzach zum achtzigsten Geburtstag dargebracht*. Reichenberg: Gebrüder Stiepel, 1930, 86-98), reconstructs and explains with his great knowledge the queer cosmic diagram described by Celsus and discussed by Origen in his rejoinder.

E. PETERSON, in reviewing L. JALABERT—R. MOUTERDE, *Inscriptions grecques et latines de la Syrie*, I (*Theol. Lit.-Z.*, LV (1930), 254-5), conjectures Ἀρκυῖα for Ἀρκυῖα in no. 221, recognises 225 as a familiar magical formula, and explains 230 μέγιστον ὡς θεὸν from Irenaeus, I. 15. 5 (ὡση isopsephy).

K. PREISENDANZ, *Papyri graecae magicae*, is reviewed by J. KROLL, *D. Lit.-Z.*, III F., II (1930), 214-9 (high praise); LEXA, *La Magie*, by S. DE RICCI, *Rev. Ég. anc.*, II (1928-9), 278-9; BÄCHTOLD-STÄUBLI, *Handwörterbuch des deutschen Aberglaubens*, I, 7-11, 11, by A. OSTHEIDE, *Phil. Woch.*, L (1930), 847-55, and U. BOMM, *Jahrb. f. Liturgiewiss.*, IX (1930), 196-8; *Symbolae Osloenses*, VII, VIII, by A. KLOTZ, *Phil. Woch.*, I (1930), 755-7 and 1186-8, v by A. D. NOCK, *Journ. Theol. Stud.*, XXXI (1930), 314; J. PH. VOGEL, *Het sanscrit woord tejas (=gloed-vuur) in de beteekenis van magische Kracht* (*Med. Ak. Amsterdam*, 70, Ser. B no. 4, pp. 43), by H. WINDISCH, *Theol. Lit.-Z.*, LV (1930), 603-4.

Christianity. I am informed that *Papyri Iandanae*, v, includes no. 69, pp. 165-9 (4th cent., last leaf of a papyrus codex, parts of 16 lines), a Christological fragment, possibly by Didymus the Blind; no. 70, pp. 169-70 (3rd cent.), a discussion of Exod. xvii. 3 ff. and Num. xx. 5 ff.; no. 71, pp. 170-2 (mid. 4th cent.), a possibly Christian fragment; no. 72 has just been mentioned.

C. SCHMIDT, *Ein neues Originaldokument aus der Diokletianischen Christenverfolgung* (*Theol. Lit.-Z.*, LV (1930), 227-9), is a republication of the eleventh text in Frisk's collection (noticed *Journal*, XVI (1930), 127-8), cleverly so interpreted. K. F. W. SCHMIDT, *Phil. Woch.*, I (1930), 234-40, restores no. 21 as a new version of the apocryphal letter of Jesus to Abgar (it was recognised as that by BELL in his review. Cf. now another restoration by H. C. YOUTIE, *Harv. Theol. Rev.*, XXIII (1930), 299-302).

W. SCHUBART, *Christliche Predigten aus Ägypten* (*Mitt. d. deutsch. Inst. f. Äg. Altertumskunde in Kairo*, I (1930), 93-105), is not accessible to me.

R. DUNKERLEY, *The Oxyrhynchus Gospel Fragments* (*Harv. Theol. Rev.*, XXIII (1930), 19-37), urges that P. Oxy. I is part of a genuine Treasury of Sayings gathered from canonical Gospels and other sources (including oral tradition), probably made for private use, 654 being rather part of a secondary Gospel, 655 perhaps another fragment thereof, 840 something incorporating early and valuable material, 1081 clearly Gnostic and unhistorical: the fragments of 1224 he rearranges 3, 4, 1, 2. On no. 840, cf. F. J. DÜLGER, *Der Durchzug durch das Rote Meer als Sinnbild der christlichen Taufe* (*Antike u. Christentum*, II, 63-9).

A. DEBRUNNER, in reviewing PREISIGKE-BILABEL, *Sammelbuch*, III, 2 (*Theol. Lit.-Z.*, LV (1930), 337-8), remarks on no. 7265 (from a marble table) ὑγιαίνων φάγε κυρ(α)κοῦς as referring to Eucharistic meals.

GLAUE, *Bruchstück des Origenes*, is reviewed by W. SCHUBART, *O.L.Z.*, XXXIII (1930), 455-6; F. LI. GRIFFITH, *Christian Documents from Nubia*, by F. C. BURKITT, *Journ. Theol. Stud.*, XXXI (1930), 209-11; F. J. DÜLGER, *Antike u. Christentum*, I, i, by A. D. NOCK, *ib.*, 308; SANDERS-SCHMIDT, *Minor Prophets*, by A. LODS, *Rev. hist. rel.*, XXVIII (1928), 111-3 (and see list of reviews given by M. HOMBERT, *Byzantion*, v, 659).

For M. J. LAGRANGE, *Un nouveau papyrus évangélique*, Mt. xxvi. 18-52 (*Rev. bibl.*, XXXVIII (1929), 161-77), and J. M. BOVER, *Dos papiros egipcios del N.T. recién publicados* (*Estudios Eclesiásticos*, IX (1930), 289-320), see the Bibliografía Metodica in *Aegyptus*, x, nos. 7625, 7631.

KARL PRÜMM, *De genuino Apocalypsis Petri textu* (*Biblica*, x (1929), 62-80), urges that the Ethiopian text is to be preferred to the Achmim fragment and uses the Rainer fragment published by WESSELY in 1924. Reviewed by E. HENNECKE, *Theol. Lit.-Z.*, LV (1930), 175-7 (reading c. 14 init. θεῖξον and supporting the Achmim arrangement of the two great visions).

G. DE JERPHANION, *La vraie teneur d'un texte de saint Athanase rétablie par l'épigraphique: l'Epistula ad Monachos* (*Rech. sc. relig.*, XX (1930), 529-44), discusses one of three letters preserved in a Latin translation after the works of Lucifer of Cagliari in Vatic. Regin. 133, in a defective Greek text published by MONTFAUCON and in an inscription found in 1820, lost, and rediscovered by the Metropolitan Museum Expedition and published by EVELYN WHITE and CRUM. This last text contains one of the passages of the *vetus Latina* absent from MONTFAUCON's text.

A. D'ALÈS, *La doctrine d'Origène d'après un livre récent* (*Rech. sc. relig.*, XX (1930), 224-68), examines carefully the third volume of DE FAYE's *Origène*; volume I is reviewed also by H. JEANMAIRE, *Rev. hist. rel.*, XXVII (1928), 132-7.

R. CADIOU, *Origène et les reconnaissances élémentines* (*Rech. sc. relig.*, xx, 506-28), accepts the view that the two citations in Origen are genuine and so give a *terminus ante quem* for the *Grundchrift*.

F. HALKIN, *Les vies grecques de S. Pachôme* (*Anal. Boll.*, XLVII (1929), 376-88), is reviewed by H. KOCH, *Theol. Lit.-Z.*, LV (1930), 352.

W. E. CRUM, *Colluthus, the Martyr and his Name* (*B.Z.*, xxx (1930), 323-7), explains the name as derived from that of an animal and discusses the martyr's cult and legend.

Jahrbuch für Liturgiewissenschaft, ix (1930), has its usual admirable bibliography: *n.b.* especially pp. 187-200.

At the moment of going to press I have received two important volumes. G. MANTEUFFEL, *De opusculis Graecis Aegypti e papyris ostracis lapidibusque collectis* (*Travaux de la Société des Sciences et des Lettres de Varsovie*, Classe I, 1930. No. 12. Warszawa: Nakładem Towarzystwa Naukowego Warszawskiego z Zasilku Funduszu Kultury Narodowej. Pp. v+203), puts together a large number of texts of religious importance, such as P. Oxy. 1380-2 and the Potter's Oracle, and fragments of mimes, in a form based on new collations and accompanied by an apparatus and valuable prolegomena. For the first time students have this scattered material in a handy form. There is much to note in detail, e.g. the treating of P.S.I. 760 as parallel to the Potter's Oracle and an ineditum (P. Berl. 13876, a mime fragment). The volume deserves a wide circulation and should do much to promote the study of the religion and culture of Graeco-Roman Egypt. Cf. also § 1. The other technically falls into the next report but must be mentioned for its interest. KARANIS, *Topographical and architectural report of excavations during the seasons 1924-28*, by ARTHUR E. R. BOAK and ENOCH E. PETERSON (University of Michigan Studies, Humanistic Series, vol. xxv. Pp. viii+69, with 42 plates, 19 plans, and 1 map. 1931. Ann Arbor: University of Michigan Press. 2 dollars). Here for the first time is a methodical excavation of a Graeco-Roman town in Egypt for its own sake. For this section we must note in particular pp. 32-4 describing the rectangular niches with religious paintings, one of a figure who is almost certainly Mithras and very like figures in the Mithraeum at S. Maria di Capua, *Notizie* 1924, one in an adjoining house of the Thracian rider god, one in the second of Isis and Harpocrates, and p. 56, a most interesting painting of Harpocrates on a lotus-adorned chair, with the beast of Sarapis by his side and a bull and altar on either side below.

3. PUBLICATIONS OF NON-LITERARY TEXTS.

(N.B. *Miscellaneous notes on and corrections of documents previously published are referred to in § 9. Reviews, when sufficiently important for mention, are noticed here.*)

General. F. BILABEL's *Sammelbuch*, III, 2, is reviewed by A. DEBRUNNER (*Theol. Lit.-Z.*, LV (1930), 337-8). BILABEL has now published the first half of the second volume of the *Berichtigungslisten*, which, on PREISIGKE's death, he undertook to continue. It consists entirely of corrections to the ostraca, which were excluded from Preisigke's work, while the second half will contain corrections to texts on papyrus. Bilabel has had the ungrudging help of J. G. TAIT, who in the course of his edition of the Bodleian and other ostraca has made very numerous corrections of texts previously published. *Berichtigungsliste der Griechischen Papyrusurkunden aus Aegypten*. Zweiter Band, Erste Hälfte. Selbstverlag des Verfassers (Heidelberg, Handschuhsheimerlandstr. 31), 1931. Pp. 145.

TAIT's own long-expected work has appeared during the year, at least in part, for vol. II, which will contain the indices, is to be issued later. The present volume contains the ostraca of the Ptolemaic period in the Bodleian Library and all those worth publishing in the Ashmolean Museum, Oxford, the Cambridge University Library, the Flinders Petrie collection at University College, London, and some small collections. The second volume will contain, besides the indices to the whole work, the ostraca of the Roman and Byzantine periods in the Bodleian. It is greatly to be hoped that this will not be too long delayed, but the time which the editor can devote to this laborious and exacting work is exceedingly limited, and publication cannot be expected for some years. *Greek Ostraca in the Bodleian Library at Oxford and various other Collections*, vol. I. London: Egypt Exploration Society, 1930. Pp. ix+181. £2. 2s. Reviewed by H. I. BELL, *Cl. Rev.*, XLIV (1930), 201.

P. BOURIANT has been reviewed by WESSELY (*Byz.-Neogr. Jahrb.*, VII (1930), 466-7).

Ptolemaic. M. NORSI has published the first fascicule of what will be a most valuable collection of facsimiles of papyri in the Florentine collection. This first part contains exclusively (with the exception of the last document, which is of the year 5 B.C.) papyri of the Ptolemaic period, and is therefore best noticed here. The plates are admirable, and they are preceded, very conveniently for the student, by

transcripts with brief descriptions and references to the previous publication. Pubblicazioni della Scuola di Filologia Classica dell'Università di Roma. Serie II: Sussidi e materiali. *Papiri greci delle collezioni italiane: Scritture documentarie*, Fasc. Primo. Roma: Giovanni Bardi, 1929. Pp. 15, 10 plates.

Vols. I-III of P. Cairo Zenon are reviewed by P. VIERECK in *Gnomon*, VI (1930), 115-21, and vol. III alone by WILCKEN in *Archiv*, IX, 229-34.

As this goes to press I have received C. C. EDGAR's edition of the Zenon Papyri in the Michigan collection. There is time only to call attention to this very important volume—important not only for the intrinsic value of the texts here contained and Edgar's commentary on them, but for the Introduction, in which, from his unique knowledge of the Zenon archive, he sums up the facts of Zenon's life and some of the problems raised by his papers. *Zenon Papyri in the University of Michigan Collection*. Ann Arbor: University of Michigan Press, 1931. (University of Michigan Studies, Humanistic Series, XXIV.) Pp. xiv + 211, 6 plates. \$3.50.

W. L. WESTERMANN, publishing three receipts from the Zenon archive, discusses this group of documents, with interesting remarks on the methods of development of the *ὑπόμνημα*, the rates of wages, etc. He distinguishes two types of receipt, according as the payment was for wages or a loan. Of the three published by him, he assigns two to the former, one to the latter type. *Regarding Receipts in the Zenon Archive*, in *Journal*, XVI (1930), 24-30. The third of WESTERMANN's receipts is bilingual, and W. SPIEGELBERG publishes the Demotic portion separately: *Der demotische Text des Papyrus Columbia No. 2[1]5*, in *Aegyptus*, XI (1931), 73-5.

I have not been able to see W. PEREMANS, *De Zenon-Papyri. Inventaris van de tot nu toe verschenen publicaties*, in *Rev. belge*, IX (1930), 1182-91.

The late E. NORMAN GARDINER, in a posthumously published article, discusses P. Cairo Zenon 59060; see also § 5 below. *A School in Ptolemaic Egypt*, in *Cl. Rev.*, XLIV (1930), 211-3.

SPIEGELBERG's *Dem. Urk. des Zenon-Archivs* (*Journal*, XVI, 126) is reviewed by WILCKEN in *Archiv*, IX, 238-9. Other reviews of Ptolemaic papyri are: POWELL and BARBER's *New Chapters* (*Journal*, XVI, 126) by H. J. R[OSE] in *J.H.S.*, XLIX (1929), 300-1; EDGAR's *Three Ptolemaic Papyri* by WILCKEN (*Archiv*, IX, 235-6); KRAEMER's *Nomarch Nicanor* by the same (*ibid.*, 236-7); P. LILLE, I, iv, by the same (*ibid.*, 237) and G. ROUILLARD (*Rev. de phil.*, IV=LVI (1930), 289); WESTERMANN's *Upon Slavery in Ptolemaic Egypt* by WILCKEN (*Archiv*, IX, 252-3), C. PRÉAUX (*Chron. d'Égypte*, V (1930), 274-8), H. I. BELL (*Cl. Rev.*, XLIV (1930), 200), and P. COLLART (*Rev. de phil.*, LVI (1930), 410-1); SPIEGELBERG's *Aus einer äg. Zivilprozessordnung* (*Journal*, XVI, 126) by L. WENGER (*Neues zur "ägyptischen Zivilprozessordnung"*, in *Z. Sav.*, L (1930), 500-2); and KUNKE's *Über die Veräusserung von Katoekenland* by WILCKEN (*Archiv*, IX, 237-8).

A reference must be made here to another discovery of a document at Dura-Europus, which bids fair to be quite an important source of information about extra-Egyptian law and documentary forms. This is a loan with service in lieu of interest. It is dated by both the Parthian and the Seleucid eras, and is important in several ways. It was found on 12 Feb. 1929 by the Yale expedition in a tower to the south-west of the Gate of Palmyra. A communication on it appears in the *C.-R. Ac. Inscr. et B.-L.*, 1930, 158-81 (M. ROSTOVITZ and C. BRADFORD WELLES, *Un contrat de prêt de l'an 121 ap. J.-C. trouvé à Doura*), and it is published by the same two scholars in the *Yale Classical Studies*, II. *A Parchment Contract of Loan from Dura-Europus on the Euphrates*. Pp. 78, 1 plate.

Ptolemaic-Roman. The most important publication of non-literary papyri during the year is Part II of P. ROSS-GEORG. This is a collection of documents of the Ptolemaic and Early Roman periods, admirably edited by O. KRÜGER. The papyri are in various collections and of various kinds. Some are extremely fragmentary but others are in good or even fine preservation. They are edited with ample commentaries with indices, and with facsimiles of two of them, nos. 11 and 18. The texts number 43 in all; only 10 are Ptolemaic. Of these 1-3 are perhaps from Hibeh (KRÜGER raises the question whether 1 and 2 belong to the same document; may they not be parts of a "double deed," one from the scriptura interior, the other from the scriptura exterior?); 6-7 belong to the collection published in P. Reinach, and indeed to fragments edited there; and 10 is the letter of Plato to the priests of Pathyris which appeared in the *Raccolta Lombroso*, here republished with a most valuable commentary. The documents of the Roman period, many but not all of which are from the Arsinoite nome, are of various kinds—returns, petitions, contracts, accounts, and one letter. Among those which deserve special mention are 18, an interesting but very fragmentary roll of bank diagraphai, and a small group of documents (16, 21, 23, 24, 30, 42) from Memphis. *Papyri russischer und georgischer Sammlungen. II. Ptolemäische und frühromische Texte*. Tiflis: Universitätslithographie, 1929. Pp. v + 255, 2 plates.

Part I of *Papiri Milanesi* (*Journal*, XVI, 127) is reviewed by WILCKEN (*Archiv*, IX, 240).

M. Norsa's *Scrittura documentaria*, which includes one papyrus of the Roman period, has been noticed above, under *Ptolemaic*.

Roman. A very important papyrus referring to Alexandria has been published by M. Norsa and G. Vitelli. This is an account of an Alexandrian embassy, apparently to Augustus, probably part of a literary or semi-literary work (of the same class as the "pagan Acts of the Martyrs") rather than of an official report, which refers throughout to the *βουλή*. Alexandria is indeed nowhere mentioned, but it can hardly be doubted that it is the city concerned, and the editors conclude that, if the city is indeed Alexandria, this is evidence for the existence of an Alexandrian senate. *Da Papiri greci della Società Italiana* (*Bull. Soc. Arch. d'Alex. Suppl. du fasc. 25*), 20. *Resoconto di una πρεσβεία di Alessandrini ad Augusto*, pp. 9-12, 1 plate. WILCKEN accepts the view of the editors (*Archiv*, IX, 253-6), and concludes, "So wird denn die alte Streitfrage, wann die Alexandriner ihre *βουλή* verloren haben, ob durch Octavian oder schon vorher durch einen Ptolemäer, definitiv im ersteren Sinne entschieden." The matter is however by no means certain. G. DE SANCTIS (*La bule degli Alessandrini*, in *Atti R. Acc. di Torino*, LXV (1930), 513-5) inclines to think "che la bule nel momento in cui si presenta la richiesta non esista e che si tratti di reintegrarla"; hence, he concludes, the document does not resolve the old question whether Octavian found a senate when he entered Alexandria. Even more positively does W. Schubart take up a view hostile to the editors' interpretation (*Der Rat von Alexandria*, in *Forsch. u. Fortsch.*, VI (1930), 274-5). He holds that the petitioners are not speaking of an existing institution but pleading for the establishment (or re-establishment) of a *βουλή*; and he even queries whether Augustus is the "Caesar" referred to; whether the embassy may not have been to Claudius. I may perhaps venture to add that I share, very decidedly, Schubart's main view; the whole wording of the text suggests to my mind an argument in favour of granting the petitioners something which they do not possess. The character of the hand seems to indicate a date later than 30 B.C., hardly perhaps earlier than the reign of Tiberius; and even if one accepts the identification of "Caesar" with Augustus, one cannot be certain that the embassy took place immediately after the Roman occupation of Egypt.

S. Lösch has devoted to the letter of Claudius to Alexandria (P. Lond. 1912) an elaborate monograph which I have not yet had time to read, since it arrived as this Bibliography was being prepared for press, but which appears to be of considerable importance. *Epistula Claudiana: Der neu entdeckte Brief des Kaisers Claudius vom Jahre 41 n. Chr. und das Urchristentum, Eine exegetisch-historische Untersuchung*. Rottenburg a. N. (Württ.): Bader'sche Verlagsbuchhandlung, 1930. Pp. 48.

C. Wessely reviews Bell's *Jews and Christians in Egypt* in *Byz.-Neogr. Jahrb.*, VII (1930), 496-9.

Woldemar Graf Uxkull-Gyllenband has published an important new fragment of the *Acta Isidori* (P. Berol. 8877). Its place in the proceedings seems to fall between the Berlin and the Cairo fragments, and it is couched in dialogue form, the speakers being Isidorus, Agrippa, and Balbillus, whom Uxkull-Gyllenband identifies, no doubt rightly, with the envoy mentioned in the letter of Claudius to Alexandria. On this ground and on others he argues for the dating of the trial, not in 53 but in 41; and his arguments seem to me very cogent. In any case this new fragment is of the utmost importance and value, and its editor is to be congratulated on the skill with which he has edited it and his reconstruction of the events. *Ein neues Bruchstück aus den sogenannten Heidnischen Märtyrerakten*, in *Sitzungsber. Pr. Akad.*, 1930, 664-79.

I must refer here to an important monograph by J. Stroux on B.G.U. 611, for which see § 6: *Eine Gerichtsreform des Kaisers Claudius (B.G.U. 611)*. (*Sitzungsber. Bayer. Akad.*, 1929, Heft 8.) München, 1929. Pp. 96. Also to Woldemar Graf Uxkull-Gyllenband's *Zum Gnomon des Idioslogos*, in *Archiv*, IX, 183-206, for which see §§ 5 and 6.

Keyes's *Petition of a State Farmer* is reviewed by Wilcken (*Archiv*, IX, 244-5), who also reviews Sanders's *A Birth Certificate of the Year 145 A.D.* (*ibid.*, 242-3). E. Cuq publishes a note on the abbreviated formula found in Sanders's tablet and elsewhere, *C.-R. Ac. Inscr. et B.-L.*, 1929, 269-70.

A. Deghassi discusses P.S.I. 1026 and military diplomas generally. *Il papiro 1026 della Società italiana e i diplomi militari romani*, in *Aegyptus*, x (1929), 242-54.

M. Hombert, who has shown the most praiseworthy activity in organizing the papyrological section of the Fondation Reine Elisabeth at Brussels, has published a census return which is of rather unusual interest for the study of population and the composition of the family in Roman Egypt. It is of the 14th year of Marcus Aurelius and comes from Thebontion Siphtha in the Prosopite nome. It shows four brothers and their families living in a single house. Hombert analyses the evidence of the document.

(In ll. 58-9 read presumably $\omega\varsigma$ ($\pi\rho\acute{o}\kappa\epsilon\iota\tau\alpha\iota$) (or $\pi(\rho\acute{o}\kappa\epsilon\iota\tau\alpha\iota)$?) $\text{ἰσπακίων Παντῶ(εῖτος) κ.τ.λ.}$) *Une famille nombreuse en Égypte au I^{er} siècle*, in *Mélanges Paul Thomas* (Bruges, 1930), 440-50. See also *Chron. d'Égypte*, v (1930), 271-4.

BILABEL's *Die gräko-ägyptischen Feste* (*Journal*, xvi, 127) is reviewed by WILCKEN in *Archiv*, ix, 241.

J. C. NABER discusses the Oxyrhynchus papyrus published as P.S.I. 940. ΠΕΡΙ ΕΝΟΙΚΙΟΥ ΔΙΚΗΣ (ad P. Soc. Ital. 940), in *Aegyptus*, xi (1931), 40-4.

A. E. R. BOAK publishes in *Ann. Serv.*, xxix, 47-63, *Select Papyri from Karanis*. These papyri were all found in the season 1924/25. They are: 1. Contract of service in lieu of interest on a debt of three talents, A.D. 277-282 (in l. 25 $\omega\upsilon$ is probably the end of the numeral); 2. Notification of death to the village scribe, A.D. 112; 3. Application to the village scribe to remove one holding from the register of taxable land and transfer three from the ἀργυρεὴ ράβδῃς to the σιστοφόρα, A.D. 214; 4. Petition by land-owners and tenants of Kerkesoucha to the epistrategus, complaining of the neglect of the κατασπορεῖς, A.D. 211/2; 5. Certificate of the epicrisis of a Roman veteran, A.D. 188.

WILCKEN reviews in *Archiv*, ix, 244, EITREM-HOLST's *Three Greek Papyri in Oslo*, and *ibid.*, 243-4, BELL's *Family Dispute concerning Hypothecation*.

Reference must be made here to the publication by P. W. TOWNSEND of a Yale papyrus (P. 156) dated 26 Payni of the reign of the first two Gordiani. For its significance in relation to chronology see § 4 below. *A Yale Papyrus and a Reconsideration of the Chronology of the Year 238 A.D.*, in *Am. Journ. Phil.*, LI (1930), 62-6.

As this goes to press I have received: *Une lettre sur l'enregistrement des libelles*, by P. JOUGUET, from *Mélanges Paul Thomas* (1930), 474-80. JOUGUET here publishes a 3rd cent. letter concerning the subscription (ὑπογράφειν) of libelli with a view to their registration (καταχωρίσειν). It is of considerable interest and is furnished by the editor with a useful discussion of the process of registration.

Roman-Byzantine. P.S.I. ix, fasc. 2 (*Journal*, xvi, 127), has been reviewed by WILCKEN (*Archiv*, ix, 245-6) and F. Z[UCKER] (*B.Z.*, xxix, 392); FRISK's P. Got. (*Journal*, xvi, 127 f.) by SCHUBART (*Gnomon*, vi (1930), 609-11), WILCKEN (*Archiv*, ix, 249-50), and K. FR. W. SCHMIDT (*Phil. Week.*, I (1930), 235-40); MÖLLER's *Gr. Papyri a. d. Berl. Museum* (*Journal*, xvi, 128) by SCHUBART (*Gnomon*, vi (1930), 612-4), WILCKEN (*Archiv*, ix, 247-8), K. FR. W. SCHMIDT (*Phil. Week.*, I (1930), 674-7), P. COLLART (*Rev. de phil.*, iv = lvi (1930), 411-2; not yet accessible to me), and B. OLSSON (*D. Lit.-Z.*, 3. Folge, I (1930), 830-1); VAN HOESSEN-JOHNSON's *Five Leases in the Princeton Collection* by WILCKEN (*Archiv*, ix, 248-9); and FRISK's *Vier Papyri a. d. Berl. Sammlung* (*Journal*, xvi, 128) by the same (*ibid.*, 248).

Byzantine. C. SCHMIDT calls attention to P. Got. II, which he reprints as a letter referring to the great persecution by Diocletian and his successors. *Ein neues Originaldokument aus der diokletianischen Christenverfolgung*, in *Theol. Lit.-Z.*, LV (1930), 227-9.

An interesting list of "properties" for mimes (which are named) is published by G. v. MANTEUFFEL from a Berlin papyrus (P. Berol. 13927, bought in 1924) of the 5th/6th century. *Apparatus mimici libellus* (*Studia Papyrologica*, II, 4), in *Eos*, xxxii (1929), 27-32.

WILCKEN reviews ZERETELI's *Eine griech. Holstafel* in *Archiv*, ix, 251, and MARTIN's *Letter from Constantinople* (*Journal*, xvi, 128), *ibid.*, 251.

I referred last year (*Journal*, xvi, 128) to MALLON's publication of some Coptic ostraca with the formula $\epsilon\tau\mu\omega\lambda\omicron\upsilon\lambda\omicron\upsilon$. W. HENGSTENBERG has followed this up with a further collection of similar ostraca, and has in several respects advanced beyond the interpretations given by MALLON. He questions the Theban provenance of these ostraca and inclines to put them later than MALLON, perhaps to the early part of the 7th century. A comparison of the hands seen in his facsimiles with those of the Wadi Sarga ostraca makes me think that he is right. By using the Wadi Sarga texts to elucidate his own and conversely he is able to throw further light on some of those in the Wadi Sarga volume. $\epsilon\tau\mu\omega\lambda\omicron\upsilon\lambda\omicron\upsilon$ he explains as "to the mill." *Die griechisch-koptischen $\mu\omega\lambda\omicron\upsilon\lambda\omicron\upsilon$ -Ostraka*, in *A.Z.*, LXVI (1930), 51-68.

Byzantine-Arab. C. WESSELY reviews P. Lond. IV and V (*Byz.-neugriech. Jahrb.*, VII (1930), 496-9).

Arab. GRIFFITH's *Christian Documents from Nubia* is reviewed by A. SCHARFF in *O.L.Z.*, XXXIII (1930), 28-9.

Postscript. The following reference which has been given me I cannot place in its appropriate section, as the periodical referred to is not accessible to me, and I do not know what papyrus is referred to: E. MINDT, *Ein griechischer Papyrus aus Ägypten*, in *Die Leibesübungen*, VI, 343-4.

4. POLITICAL HISTORY, BIOGRAPHY, ADMINISTRATION, TOPOGRAPHY AND CHRONOLOGY.

General. There are matters of Egyptian interest in O. STEIN, *Indien in den griechischen Papyri*, published in *Indologia Pragensis* (Schr. d. phil. Fak. d. deutsch. Univ. Prag 2), 1929, 34-57.

ERNST STEIN, *Geschichte des spätromischen Reiches*, I, has been reviewed by W. ENSSLIN, *Byz.-neugriech. Jahrb.*, VII (1930), 514-8; in *Gnomon*, VI (1930), 496-505; and in *Klio*, XXIII (1930), 479-83.

F. LOT, *La Fin du monde antique*, etc., is reviewed by NORMAN H. BAYNES in *Journ. Rom. Stud.*, XIX (1929), 224-35, and a reference may be made to BAYNES's paper, *Some Aspects of Byzantine Civilisation*, *op. cit.*, XX (1930), 1-13.

Political History and position of nationalities. U. WILCKEN's paper on the visit of Alexander to Siwa (see *Journal*, XVI, 129) has roused much discussion. It is criticized by H. BERVE in *Gnomon*, 1929, 370-86, and by G. PASQUALI in *Riv. di fil.*, VII (1929), 4, to whom WILCKEN replies in *Alexanders Zug zum Ammon: ein Epilog* in *Sitzungsber. Pr. Akad.*, 1930, x, 159-76, maintaining his previous view: also by E. BRECCIA in *Bull. Soc. Arch. d'Alex.*, VII (1930), 152-65, by HANS LAMER in *Klio*, XXIV (1930), 63-9, and by C. F. LEHMANN-HAUPT in *Klio*, XXIV (1930), 169-90 and 376-80, who all cling to the religious view. On the other side there is J. G. MILNE's article in *Anc. Egypt*, 1929, 74-8.

A. ANDRÉADÈS takes a more favourable view of Cleomenes of Naukratis than has been usually adopted by historians: see pp. 10-18 of *Antimène de Rhodes et Cléomène de Naukratis* in *B.C.H.*, LIII (1929), 1-18.

NELLY GREIFL discusses O.G.I. 16, which she dates under Philadelphus, in *Philologus*, LXXXV (1929), 159-74, *Über eine Ptolemäerinschrift*; her view is contested by U. WILCKEN in *Archiv*, IX, 223-5—*Zur Sarapisinschrift von Halikarnass*. See also § 2 above.

A. MOMIGLIANO has an article on *Il decreto trilingue in onore di Tolomeo Filopatore e la quarta guerra di Celestria in Aegyptus*, x (1929), 100-9.

In *Ä.Z.*, LXV (1930), 53-7, W. SPIEGELBERG publishes *Eine neue Erwähnung eines Aufstandes in Oberägypten in der Ptolemäerzeit*, dealing with a reference to troubles in the Pathyris district in year 24 of an unnamed king: he thinks it is probably of the Soter II and Alexander period.

An important document dealing with the history of the Senate at Alexandria is published by M. NORRA and G. VITELLI in *Bull. Soc. Arch. d'Alex., Suppl. du fasc. 25* (1930), 9-12, *Resoconto di una πρεσβεία di Alessandrini ad Augusto*, which supports the view that Augustus abolished the Senate: it is reviewed by U. WILCKEN in *Archiv*, IX, 253-6. See also W. SCHUBART, *Der Rat von Alexandria*, in *Forsch. u. Fortsch.*, VI (1930), 274-5, and G. DE SANCTIS, *La bule degli Alessandrini*, in *Atti R. Acc. di Torino*, LXV (1930), 513-5.

The interest of C. F. LEHMANN-HAUPT's article on the *Germanicus Papyrus* in *Klio*, XXIII (1929), 140-3, is mainly historical.

M. ROSTOVITZ, *L'empereur Tibère et le culte impérial*, in *Rev. hist.*, CLXIII (1930), 1-26, should be noted here: see also § 2.

Contributions to the literature on the Jewish question in Imperial Egypt are made by S. LÖSCH, *Epistula Claudiana: Der neuentdeckte Brief des Kaisers Claudius vom Jahre 41 n. Chr. und das Urchristentum*, Rottenburg a. N., 1930, pp. 48; by S. HEINEMANN, *Ursprung und Wesen des Antisemitismus im Altertum*, in *Hist. Z.*, CXLI (1930), 176; and by Woldemar Graf UKKULL-GYLLENBAND, *Ein neues Bruchstück aus den sogenannten Heidenischen Märtyrerakten*, in *Sitzungsber. Pr. Akad.*, 1930, 664-79. See § 3.

F. SCHEHL in *Untersuchungen zur Geschichte des Kaisers Antoninus Pius*, in *Hermes*, LXV, 177-208, (1) discusses B.G.U. VII, 1564 in its relation to the Parthian war, and (2) points out that the greater part of the passages in Malala xi concerning Antoninus and Alexandria really refer to Caracalla.

Administration. The Cyrene inscriptions continue to excite interest: V. EHRENBURG has an article *Zur Verfassungsgeschichte von Kyrene* in *Hermes*, LXV (1930), 332-55, and L. ROBERT in *Rev. ét. anc.*, XXXII (1930), 202-3, notices one by PAOLA ZANCAN, *Il diagramma di Cyrene*, in *Atti R. Ist. Veneto*, LXXXVIII (1929), 1291-1305.

A. WILHELM, *Inscription aus Theben*, in *Archiv*, IX, 214-7, should be noted in connexion with Ptolemaic military organization, and C. C. EDGAR, *A Greek Inscription*, in *Ann. Serv.*, XXIX, 77-80, in connexion with Roman local government.

E. R. GOODENOUGH has made a study of Philo's account of Jewish legal practice at Alexandria in *The Jurisprudence of the Jewish Courts in Egypt*. New Haven, 1929. Pp. ix+268. It is reviewed by M. RADIN in *Cl. Phil.*, XXV (1930), 294-7. See § 6.

Articles to be mentioned here, which belong mainly to other sections, are E. BICKERMANN, *Beiträge*

sur antiken Urkundengeschichte. III. "Ερευνῆς und ἀπομνημονεύματα, in *Archiv*, ix, 155-82 (see § 7); A. DEGRASSI, *Il papiro 1026 della Società italiana e i diplomi militari romani*, in *Aegyptus*, x (1929), 242-54 (see § 3); and O. STEIN, "Επισκεψίς, in *Charisteria*, 176-80 (see § 8).

It may be mentioned that among the theses for the doctorate, 1929-30, at the University of Brussels, is that of Mlle. SIMONE DEMETS on *Les Préfets d'Égypte et leurs édits*. Reference may also be made to JOUGUET's publication of a letter concerning the registration of *libelli* referred to in § 3.

On Byzantine administration, the only work which has appeared during the year would seem to be a dissertation of the University of Giessen by OTTO HORNICKEL, *Ehren und Rangprädikate in den Papyrusurkunden: Ein Beitrag zum römischen und byzantinischen Titulwesen* (Universitätsverlag von Robert Noske in Borna-Leipzig), 1930. Pp. x, 39+Lebenslauf. This is designed as a supplement to the *Wörterbuch der griechischen Papyrusurkunden* of PREISIGKE-KIESSLING. The student of administrative history has every reason to be grateful for self-denying work such as this.

G. ROUILLARD, *L'administration civile de l'Égypte byzantine* has been reviewed by C. WESSELY, *Byz. neugriech. Jahrb.*, vii (1930), 475-9; by E. STEIN, *Gnomon*, vi (1930), 401-20 (cf. *Hist. Z.*, 141, 412-3); by L. BRÉHIER, *Journ. Sav.*, 1929, 425-7; by E. BRECCIA, *Bull. Soc. Arch. d'Alex.*, no. 25, 171-9; and by M. BERNIER, *Rev. ét. anc.*, xxxii (1930), 70-1.

Topography. Le Comte du MESNIL DU BUISSON gives his *Compte rendu sommaire d'une mission à Tell-el-Yahoudiyé* in *Bull. Inst. fr. d'arch. or.*, xxix (1929), 155-78.

FR. ZUCKER reviews F. W. VON BISSING's *Tine* (see *Journal*, xvi, 130) in *D. Lit.-Z.*, 1930, 602-4.

E. BRECCIA reviews E. DABESSY's *Menelais et l'embouchure de la branche Canopique* in *Bull. Soc. Arch. d'Alex.*, vii (1930), 166-71.

Chronology. A. E. R. BOAK has found a new Caligulan month-name: *The Month 'Αγρίππαιος* in *Archiv*, ix, 225-6.

MARY E. DICKER deals with the genesis of *The Antinoopolite Calendar* in *Archiv*, ix, 226-7.

T. E. PEET reviews KUBITSCHKE's *Grundriss* (see xv, 125) in *Journal*, xvi (1930), 165; E. CAVAGNAC notices FOTHERINGHAM's *The Calendar* (see xvi, 130) in *Rev. ét. anc.*, xxxii (1930), 88.

P. W. TOWNSEND discusses the chronology of the year A.D. 238 in the light of a new papyrus fragment: *A Yale Papyrus and a Reconsideration of the Chronology of the Year 238 A.D.*, in *Am. Journ. Phil.*, li (1930), 62-6 (see § 3).

5. SOCIAL LIFE, EDUCATION, ART, ECONOMIC HISTORY, NUMISMATICS, AND METROLOGY.

General. A. M. ANDRÉADES has published *Ἱστορία τῆς Ἑλληνικῆς δημοσίας οἰκονομίας. Τόμ. β'. οἱ Ἑλληνομακεδονικοὶ χρόνοι. μέρ. α'.* Ἡ δημοσία οἰκονομία τοῦ μεγάλου Ἀλεξάνδρου. Athens, 1930. Pp. 104.

J. VOGT's *Herodotus in Aegypten* (see xvi, 130) is reviewed by H. I. BELL in *Journal*, xvi (1930), 266; and P. VIERECK's *Philadelphica* (see xv, 125) by C. PRÉAUX in *Chron. d'Ég.*, v (1930), 133-8, by E. BRECCIA in *Bull. Soc. Arch. d'Alex.*, vii (1930), 161-5, and by F. OERTEL in *Hist. Z.*, cxliii (1930), 98-9.

ROSTOVITZEF's *The Social and Economic History of the Roman Empire* has been reviewed by NORMAN H. BAYNES in *Journ. Rom. Stud.*, xix (1929), 224-35.

Finance, Agriculture, Industry. The article by A. ANDRÉADES on Cleomenes of Naukratis mentioned in § 4 should be noted here.

There is a valuable collection of Egyptian material in F. HEICHELHEIM, *Wirtschaftliche Schwankungen der Zeit von Alexander bis Augustus*, Jena, 1930, pp. 142: it is reviewed by S. R[EIFNACH] in *Rev. arch.*, xxxi (1930), 384-5, by A. BLANCHET in *Journ. Sav.*, 1930, 228-9, by J. G. MILNE in *Journal*, xvi (1930), 267-8, and by A. CALDERINI in *Aegyptus*, xi (1931), 93-4.

G. GLOTZ has republished his article on *Le prix du papyrus dans l'antiquité grecque*, noticed in *Journal*, xvi, 130, in *Bull. Soc. Arch. d'Alex.*, vii (1930), 83-96.

W. L. WESTERMANN's *Slavery in Ptolemaic Egypt* (see *Journal*, xvi, 130) is reviewed by U. WILCKEN in *Archiv*, ix, 252-3, by C. PRÉAUX in *Chron. d'Ég.*, v (1930), 274-8, by H. I. BELL in *Cl. Rev.*, xliii (1930), 200, and by P. COLLART in *Rev. de phil.*, lvi (1930), 410-1.

W. L. WESTERMANN gives a useful survey of *Warehousing and Trapezite Banking in Antiquity* in the *Journal of Economic and Business History*, iii (1930), 30-54.

Various questions relating to the Gnomon are discussed by WALDEMAR GRAF UXKULL-GYLLENBAND, *Zum Gnomon des Idioslogos*, in *Archiv*, ix, 183-206. See also §§ 3, 6.

V. MARTIN, *La fiscalité romaine* (see *Journal*, XIII, 112), is reviewed by S. R[HEINACH] in *Rev. arch.*, XXX (1929), 350.

A. SEGRÈ writes on *Circolazione e inflazione nel mondo antico* in *Historia*, III (1929), 369-80.

A paper by K. WILHELMSON, *Zum römischen Fiskalkauf in Aegypten*, is published in *Acta et Comm. Univ. Tartuensia*, B. XVIII, 5. See also § 6.

C. WESSELY discusses *jus lapides transportandi* in *Studi Bonfante*, II (1930), 17-8 (see *Journal*, xv, 121).

The first part of a paper by MARIA MERZAGORA on *La navigazione in Egitto nell'età greco-romana* appears in *Aegyptus*, x (1929), 105-48.

H. A. THOMPSON discusses the references to *Syrian Wheat in Hellenistic Egypt* in *Archiv*, ix, 207-13.

S. ZEIVIN deals with *The Ptolemaic System of Water-Supply in the Fayyûm* in *Ann. Serv.*, xxx (1930), 27-30.

Education, Science, and Art. In *A School in Ptolemaic Egypt*, E. N. GARDINER deals with the training of boys in the palaestra mentioned in the Zenon papers: *Cl. Rev.*, XLIV (1930), 211-3. See also § 3.

E. BRECCIA notices MARIA KOBYLINA's *Zur Geschichte der Alexandrinischen Skulptur* (see *Journal*, xvi, 131) in *Bull. Soc. Arch. d'Alex.*, VII (1930), 192-4.

Numismatics and Metrology. M. C. SOUTZO gives *Un nouvel exposé du système monétaire des Lagides* in *Chron. d'Ég.*, v (1930), 263-9.

J. G. MILNE discusses a numismatic problem in the Gnomon in *The Roman regulation of exchange values in Egypt* in *Journal*, xvi (1930), 169-70.

6. LAW.

A. General.

i. *Bibliographies and collected works.* We regret that for a second consecutive year the *Rev. hist. dr.* does not contain E. PERROT's bibliographical bulletin. We record: P. M. MEYER, *Juristischer Papyrusbericht*, VI (Okt. 1927 bis Okt. 1929), *Z. Sav. L.* (1930), 503-50; U. WILCKEN, *Urkunden-Referat*, *Archiv*, IX (1930), 228-56; L. WENGER, *Juristische Literaturübersicht*, II (1914-30), *ibid.*, 257-314; A. CALDERINI, *Bibliografia metodica degli studi di Egittologia e di papirologia*, *Aegyptus*, x (1929), 329-73 (*Diritto e amministrazione*, 353-5); *Testi recentemente pubblicati*, *ibid.*, 297-300; M. HOMBERT, *Bulletin papyrologique*, *Byzantion*, IV (1927), 1-25 (extract), and *ibid.*, v (1929-30), 655-70; the same in *Chron. d'Ég.*, IV (1929), 329-36, v (1930), 156-62. P. COLLINET has supervised the compilation of *Bibliographie des travaux de droit romain en langue française* (Paris, 1930, vi+42 pp.), going up to the end of 1928. In *Arch. giurid.*, XIX (1930), 229-31, F. MAROI gives a necrology of A. ALBERTONI, accompanied by his bibliography. Bibliographical matter will also be found in *B.Z.*, XXIX (1929-30), 391-3, 473-8.

The republication of FERRINI's shorter works has now been completed (*Opere di Contardo Ferrini*, vols. I-V, Milan, 1929-30) under the most competent editorship. The fifth volume contains valuable indexes of subjects and texts (papyri, pp. 522-3). The volume of most direct importance to us is the first, on Romano-Byzantine law, but the quality of FERRINI's work in all branches of Roman law makes the complete set desirable in any library. In a review of the first two volumes E. SEIDL, *K.V.G.R.*, XXIV (1930), 75-88, contributes an excellent critical account of FERRINI's work in three subjects, the Paraphrase of the Institutes, the Syro-Roman Lawbook and the Institutes. A collection of a totally different kind is *Studi in onore di Pietro Bonfante*, I-IV, Milan, 1930, with supplementary *Indice delle fonti*, in which last papyri occupy pp. 764-70. It is a mirror of Romanistic studies all over the world. A number of the contributions, issued separately, have been mentioned in this section in the last two years; others are referred to below.

ii. *Legal history of antiquity.* L. WENGER's *Juristische Literaturübersicht*, II (A. i) maintains the point of view of his previous instalment (*Journal*, xv (1929), 127. Cf. *Journal*, xvi (1930), 131); we are still under the rubric *Allgemeine Darlegungen*, and not till the next instalment shall we reach the monographic literature which is papyrological in the strict sense. What we have before us is not a bibliography proper, though the literature cited is exhaustive, but an article, dealing chiefly with scientific methods and aims, in the form of a series of reviews of more or less recent works. Two main topics are treated: the history of ancient law generally, more particularly oriental (pp. 258-98), and the problem of the evolution of Roman law from the end of the classical period till Justinian (pp. 298-307); there is an appendix on a number of general works not falling under either of the two main headings (pp. 307-14). Most of the literature mentioned under the first heading has already been registered here (*Journal*, xv and xvi, 11. c.); what has not would carry us beyond our present scope, with the exception perhaps of E. WEISS's

review of WENGER's *Der heutige Stand*, etc. (*Journal*, xv (1929), 127), in *Arch. R. u. W.*, xxii (1929), 292-302 (not seen). WENGER's pp. 269-83 give an invaluable survey of the modern literature of oriental law, including Jewish. Various particular items of the article will be mentioned in the course of the section. In the second part of the *Übersicht* will be found an account of the Berytus controversy, in which S. RICCOBONO and P. COLLINET are protagonists. The position, moderately eastward, taken up by WENGER himself is naturally most important. To the works mentioned in this connexion in *Journal*, xvi (1930), 131-2, add a sharp attack on RICCOBONO's position by E. ALBERTARIO, *La crisi del metodo interpolazionistico*, *St. Bonfante*, i, 609-72; a criticism of the other side by L. CHIAZZESE, *Nuovi orientamenti nella storia del dir. rom.*, *Arch. giurid.*, xix (1930), 87-115, 165-228; and two contributions by S. RICCOBONO, *Nichilismo critico-storico nel campo del dir. rom. e medioevale* (extr. *Ann. R. Univ. Palermo*, 1930, a. viii), stating his position in a popular manner, and *Lineamenti della dottrina della rappresentanza diretta in dir. rom.* (*Ann. Sem. Giurid. Palermo*, xiv (1930), 389-447), proving that the developments of the law of agency found in the *Corpus Iuris* were already known in substance to the classical jurists. A similar result with regard to the doctrine of *dolus*, *culpa* and *casus* (apart from the Byzantine distinction *culpa lata* and *levis*) is reached by B. KÜBLER, *Der Einfluss der griech. Philosophie auf die Entwicklung der Lehre v. d. Verschuldensgraden im röm. Recht* (extr. *Rechtsidee u. Staatsgedanke*, ed. K. Larenz, 63-76, Berlin, 1930). He concludes: "It is noteworthy that influences of Greek philosophy and rhetoric on the development of Roman law can in this case be shown with probability for the early classical period, but not for the period of degeneration." A salutary douche of rationalism is administered by W. W. BUCKLAND, *Dig. xlvii, 2 (De Furtis) and the methods of the compilers*, *Tijdschr. v. Rechtsgesch.*, x (1930), 117-42. We have also to note F. PRINGSHEIM, *Die archaische Tendenz Justinians*, *St. Bonfante*, i, 549-87, and W. KUNKEL, *Methodische Gesichtspunkte z. Interpolationsforschung*, *Z. Sav.*, l (1930), 725-7 (a summary), both extremely interesting. Lastly, B. KÜBLER, *Phil. Woch.*, l (1930), 73-8, after describing the modern methods of discovering interpolations, and pointing out the dangers of the linguistic and rhythmic (RECHNITZ) tests, awards the highest praise to the work under review, E. LEVY and E. RABEL's *Index interpolationum quae in Iustiniani Digestis inesse dicuntur* (1, libb. i-xx, Suppl. i, libb. i-xii. Weimar, 1929). But he observes that the *Index* shows that more than half the Digest is under suspicion, and asks how the compilers could have done so much in three years. It is time for philologists to criticize and for jurists to self-criticize.

Yielding a little to WENGER's influence, we may mention E. SEIDL's very useful *Sammelbericht: Übersetzungen u. Abh. z. vortol. Rechte Aegyptens* (1903-29), *K.V.G.R.*, xxiv (1930), 37-73, suitable for non-specialists, vouched for by L. WENGER, *Archiv*, ix, 258, n. 1, 282; G. FURLANI, *Leggi dell' Asia anteriore antica* (*Ist. per l' Oriente*, Rome, 1929, not seen), on which see P. COLLINET, *Rev. hist. dr.*, ix (1930), 176-7, and P. KOSCHAKER, *Z. Sav.*, l (1930), 687-9. Add A. ALBERTONI, *Dir. biz., dir. balcanici, dir. ital.* (*Ist. per l' Europa Or.*, Rome, 1930), which is recommended particularly for its bibliography by P. FOURNIER, *Rev. hist. dr.*, ix (1930), 564; also G. BESELER, *Z. Sav.*, l (1930), 439-40, contesting P. KOSCHAKER's view of the passing of property in middle-Assyrian sale, and B. VALORI, *Il dir. del sepolcro nell' antico Egitto*, in *Arch. giurid.*, xix (1930), 59-86 (pre-Ptolemaic). Finally, in *Cl. Phil.*, xxv (1930), 294-7, M. RADIN reviews E. R. GOODENOUGH, *The Jurisprudence of the Jewish Courts in Egypt...under the early Roman Empire...*, New Haven, 1929 (not seen). He holds unnecessary and unproven the main contention of the book, that Philo's four books, *De specialibus legibus*, do not set forth an abstract system based on the Pentateuch, but the actual law of the Jewish courts in Alexandria. Reflections of that law there may be in Philo, but to detect them requires special qualifications.

iii. *Miscellaneous reviews.* There have been the following notices of L. WENGER, *Aus Novellenindex u. Papyruswörterbuch* (Munich, 1928. See *Journal*, xv (1929), 132, and xvi (1930), 132, iii): P. COLLINET, *Rev. hist. dr.*, ix (1930), 336-7; P. M. MEYER, *Z. Sav.*, l (1930), 509-10, 517; B. KÜBLER, *ibid.*, 619-23; M. SAN NICOLÒ, *O.L.Z.*, xxxiii (1930), 508-9; E. GRUPE, *Phil. Woch.*, l (1930), 46-8. All are favourable, but most are quite short. KÜBLER's contains interesting suggestions for further word-studies of the same nature as WENGER's on *ἀγραφος* and *ἑγγραφος*. SAN NICOLÒ observes the importance of Greek patristic literature of the Justinian period, and notes the publication of the first parts of a systematic index to MIGNÉ's Greek Patrology by HOFFNER (not seen).

In *Museum* (Leyden), xxxviii (1930), no. 2, D. COHN reviews F. VON WOESS, *Untersuchungen über das Urkundenwesen*, etc. (Munich, 1924). (Dutch. Not seen.) In a careful review of A. LEVET, *Le bénéfice de compétence* (Paris, 1927), E. SEIDL draws attention to the possibility that some features of that institution are of Hellenistic origin: *K.V.G.R.*, xxiv (1930), 88-101; cf. H. SIBER, *Z. Sav.*, xlix (1929), 560-8.

iv. *Juristic texts, and studies of juristic texts.* Zum *Gnomon des Idioslogos*, by W. Graf UCKL-GYLLENBAND, is so accessible to papyrologists (*Archiv*, ix (1930), 183-206) that the briefest account of its main conclusion will suffice. It is that the *Gnomon* is an extract from a much larger *Gnomon*, made with the special object of providing, probably for a subordinate of the *Il.*, a summary statement of the position in matters where the law had recently been altered or was in flux (*τὰ ἐν μέσῳ κεφάλαια* of the *pr.* meaning "doubtful points"). Hence the topics are by no means the most important parts of the *Il.*'s competence. Points to which U.-G. gives special attention are the *Il.*'s position in sacral matters (substantial agreement with H. STUART JONES), the sepulture regulations (*Gnomon*, §§ 1 and 2) as showing a reversion by M. Aurelius to Trajan, the Alexandrian law of intestate succession (§ 4) as showing an un-Roman, but perhaps Hellenistic, limitation of the circle of possible inheritors, and restrictions on the commercial capacity of state-debtors (§ 70. *Ed. Tib. Int. Alex.*, §§ 2 and 3). A new edition of the well-known *Oratio(nes) Claudii de decuriis iudicum*, etc. (BRUNS, *Fontes*, p. 198) has been published with commentary by J. STROUX, *Eine Gerichtsreform des Kaisers Claudius* (*B.G.U.* 611), *Sitzungsber. Bay. Ak. ph.-hist. Kl.*, 1929, 8. He gives some new textual readings and conjectures, one of which (ll. 2-3) would, on his interpretation, remove the difficulty as to the *l. Plaetoria*. He argues that the *Oratio* (not *Orationes*) down to II, 11 concerns civil suits, and only thereafter criminal. In regard to the latter he makes an interesting point on the *curiosum consilium* of II, 13. Very brief notice by L. BORETTINI, *Bull. Ist. Dir. Rom.*, xxxviii (1930), 195-6; longer by F. DE ZULUETA, *J.R.S.*, xix (1929), 248-9. Hidden away in a note to a review of F. BOZZA's *Sulla competenza dei Centumviri* (Naples, 1928, not seen) are some valuable remarks by P. KOSCHAKER on STROUX's views: *Z. Sav.*, L (1930), 681. The question is of the meaning of *subscripto iudicio* in the *Oratio Claudii*, I, 10, which, if we accept STROUX's contention that I, 8-II, 11 deal with civil cases, is only paralleled by Pliny, *ep.* v, 1, 7: *subscribere centumvirale iudicium cum adversario*. This, KOSCHAKER agrees, creates the likelihood that Claudius too was concerned with centumviral (STROUX, 47-8). But KOSCHAKER sees difficulties in STROUX's main contention, and thinks that the sharp transition marked by *Nam quidem* in II, 11 may indicate a passing from measures against manoeuvres requiring only provisional to those admitting of definite repression, not, as STROUX holds, from civil to criminal cases.

E. VOLTERRA, *Mem. Acc. Lincei*, III, fasc. I (1930), has published what is evidently an important study (not seen) of the mysterious *Collatio legum Mosaicarum et Romanarum*. P. FOURNIER, *Rev. hist. dr.*, ix (1930), 174-6, gives a short account of the study, but, while admiring it, thinks that the fragmentary character of the *Collatio* renders results uncertain. A fuller and weighty discussion is given to it by E. LEVY, *Z. Sav.*, L (1930), 698-705. He welcomes the fact that at last a lawyer has been found competent to deal also with the theological evidence, and, in spite of some partiality and omissions, he regards VOLTERRA's work as a great advance. But he does not agree with its conclusions, which are that the *Collatio* is a 4th cent. work (after 324, *Cod. Hermog.*), an apologetic by a Jew who is defending, against the now dominant Christians, the Mosaic law as being in manifold harmony with the Roman, and to that extent its forerunner. LEVY agrees that it is a Jewish apologetic, but holds that it is addressed to heathen rulers, not Christian. Had it been addressed to the latter, it would, instead of ignoring their laws, have insisted on the harmony of the Mosaic law with Christianity, and on their common antithesis to Roman law. Plenty of examples would have been found in the *Cod. Theod.* Hence the *Collatio* must have been written in the heathen period, and the true *terminus ante quem* is the Edict of Milan (question of date of *Cod. Hermog.*). The *terminus post quem* is furnished by the Edict de *Manichaeis*, *Coll.* xv, 3. The review ends on the question of the transmission, which LEVY says was Jewish till the 9th cent., and that of the interpolation of the text (none of the Roman parts), and concludes that the *Collatio* reflects Roman law of the beginning of the 4th cent., and that such scholastic influence as it shows is Western and pre-Constantine.

In *Paulus und der Sentenzenverfasser*, *Z. Sav.*, L (1930), 272-94, E. LEVY maintains, one may say proves, that Paul's *Sententiae* are really an anthology made from Paul's works in the 3rd century, at latest before *Cod. Theod.*, I, 4, 2 (327?), with the object of rendering Paul available in practice. There are abbreviations, combinations and rearrangements of passages, but not intentional alterations. The hand of the compiler is shown by unconscious linguistic variations, and by simplifications rendered necessary by the decay of jurisprudence, and possibly by the abandonment of the *formula*. The article is a fine first-fruit of its author's *Ergänzungsindex zu Ius und Leges*, Weimar, 1930, which covers a number of sources not within the scope of the various existing indexes: details in *Z. Sav.*, XLVI (1926), 287-9 and L (1930), 727. The sources include several classical fragments recovered by papyrology too late for

inclusion in the *Vocab. Iurisp. Romanae*, but the chief importance of the work, which is considerable, is in regard to the legal speech of the post-classical West: see P. COLLINET, *Rev. hist. dr.*, ix (1930), 832-3.

A. SEGRÈ, *Tre papiri giuridici inediti*, St. Bonfante, III, 419-36, publishes (a) a very fragmentary 5th-6th century papyrus containing Greek *scholia* explaining Latin law terms. They cite Modestinus, Paul and Papinian, but do not coincide with D. 50, 16, *De V. Sign.* That the *scholia* begin with *ὅτι* suggests that they are lecture-notes, perhaps a relic of the very elementary teaching of the Alexandrian law-school (*Omnia*, § 7). (b) Fragments of a small sheet, written on both sides, containing *Cod. Just.*, 7, 16, 41...*quod idem* to 7, 17, 1, 2 *nilominus per...*, but reasons of space, e.g. ll. 3-6, suggest departure from our text, so that this may be another trace of the first edition of the *Codex*; but the hand does not appear to be the same as that of P. Oxy. 1814, though it is of the same type. (c) A fragmentary petition, of the reign of M. Aurelius and Commodus, to the *ἐξηγητὴς* of Alexandria, asking for ἀπογραφὴ of the *bona hereditaria* of Sabinia Apollonaria in the βύβλ. ἐγκτ. of Heracleopolis. It is accompanied by a copy of her will, made *per aes et l.*, translated into Greek. The *heredes* are her two sons, the petitioners. The lacunae of this very fragmentary papyrus are in part restorable from the three parallels, B.G.U. 326, P. Hamb. 73, and B.G.U. 1655.

In *Riv. di Storia del Dir. It.*, III (1930), 179-84, E. VOLTERRA gives a useful analysis of C. A. NALLINO, *Sul libro siro-romano e sul presunto diritto siriano*, St. Bonfante, I, 201-61 (not yet read). The two chief points, according to VOLTERRA, are first that the Law-book cannot be regarded as a source for a common Syrian law, because the cultural conditions and religious divisions of the Aramaic communities negative the possibility of a common law, and secondly that, though the book was composed, as BRUNS also held, about 476-80 (by a Greek *civis*, for scholastic purposes, with very defective knowledge, possibly at Constantinople), the Syriac version is not earlier than the 8th century, when it was made for the use of Syrian ecclesiastics, who were forced by the conditions of Mussulman domination to become legislators and judges. But it had no practical importance, and its literary importance is the quite modern one of having turned the attention of Romanists to the fusion of Roman and Eastern laws. If NALLINO's conclusions are accepted, and they come with great authority, much that has been written on this subject will have to be revised.

G. LA PIRA, *Frammenti papiracei di un κατὰ πρόδα del Digesto*, Bull. Ist. Dir. Rom., XXXVIII (1930), 151-74, publishes three fragments recently acquired by the Soc. Ital. of the outside double folio of a quaternion belonging to a translation of the Digest. The matter is from tit. 8, 9 and 11 of Dig. II. The work seems to be of the age of Justinian; the translator has a tendency to interpret, and disregards the rules for copying (*Tanta*, § 22), but so does the *index* preserved in P.S.I. 55. The editor rejects the idea that it may be a trace of a pre-Digest, and he thinks it is not Alexandrian. No direct evidence as to its authorship is obtainable from the *Basilica*, but LA PIRA argues that the style of Dorotheus, whose *index* may be regarded as a κατὰ πρόδα, is recognizable. The text (pp. 172-4) follows an interesting comparison of the passages in translation with the original.

F. H. LAWSON, *The Basilica*, I, L.Q.R., XLVI (1930), 486-501, gives, what is welcome, a clear and succinct account of the *Basilica*, treating specially of their tradition, object and arrangement, and making with regard to the last point the suggestion that the common subject of the section constituted by books 11-27 is contentious law. Cf. the same author's article in *Z. Sav.*, XLIX (1929), 202-29. F. DÖLGER has continued the edition of Tipucitus begun in 1914 by FERRINI and MERCATI: M. Κριστὸς τοῦ Παρζῆ, Τιποῦκτιος. *Librorum lxx Basilicorum summarium. Libros xlii-xxlii*, ed. Franciscus Doelger (*Studi e Testi*, 51), Rome, 1929. Favourable review by J. JUNCKER, *Z. Sav.*, I (1930), 713-21. *Lex Rhodiorum nautica e codice rescripto bibl. Ambrosianae*, ed. J. L. Perugi, Rome, 1929 (not seen), is mentioned in *Gnomon*, VI (1930), bibl. suppl., p. 30.

v. *Documents and comments.* We have little to add to P. M. MEYER's *Bericht* and U. WILCKEN's *Referat* (A. i above). M. HOMBERT, *Une famille nombreuse en Égypte au II^e siècle*, in *Mél. Paul Thomas*, 440-50 (Bruges, 1930), publishes a sample from a series of κατ' οἰκίαν ἀπογραφαί contained in a large papyrus recently acquired by the Royal Museum of Brussels, with an introduction on the history and significance of these returns, and reflections on the large number of persons living in a presumably miserable habitation. Cf. P. M. MEYER, *Z. Sav.*, I (1930), 514. In *Riv. di fil.*, VIII (1930), 118, G. D. S. notes a study by D. P. PAPPULIAS of the Greek law of intestate succession published from a Dura parchment by B. HAUSOULLIER, *Rev. hist. dr.*, II (1923), 515-53, and P. KOSCHAKER, *Z. Sav.*, XLVI (1926), 290-304. G. D. S. reproduces PAPPULIAS's text (Πρακτικά τῆς Ἀκαδημίας Ἀθηνῶν, 1929, fasc. 8—not seen).

vi. *Diplomatic*. On E. BICKERMANN, *Beitr. z. antiken Urkundengesch.* III. *Ἐντεύξις und ἐπόμνημα, *Archiv*, IX (1930), 155-82, see § 7. Besides P. M. MEYER's section on *Urkundewesen* in *Z. Sav.*, I (1930), 519-24, we have, *ibid.*, 689-98, a review by E. SCHÖNBAUER of H. STEINACKER, *Die antiken Grundlagen der frühmittelalterlichen Privaturkunde* (*Journal*, XVI (1930), 133). The reviewer doubts the line of derivation from one ancient national system to another, and from antiquity to the early Middle Ages, except in the external sense of imitation of the practice of putting legal matters in writing. To establish legal reception, it would be necessary to determine in each system the function of documentation, and to compare the systems. It is an error of STEINACKER's, though not consistently maintained, to confine the present volume to the purely private document; account must also be taken of public institutions for the documentation of private business. For example, *καταγραφὴ*, comparable in its oldest form to the comital will rather than to the classical conveyance, represents the cooperation of the community, by virtue of which buyer got title, though seller may have lost his by virtue of the *ἀπογραφὴ* on the basis of which the *καταγραφὴ* took place. WILCKEN's researches (U.P.Z. 126), showing that merely evidentiary registration is represented by *ἀναγραφὴ*, came too late for STEINACKER. Again *καταγρ.* is not derived from the demotic renunciation document (PARTSCH-KUNKEL), but became an individualistic private document only when the common life of the Greek communities had become submerged in the native population. On the question of *insinuatio* the reviewer goes further than A. STEINWENTER (*Journal*, XVI (1930), 133), maintaining a pre-Constantine independent Roman practice of keeping a register of acts of *jurisd. voluntaria*. But Constantine's law marks a return to Greek conceptions. As to BRUNNER's doctrine, STEINACKER has shown that *traditio cartae*, widespread though it was, was not a legal essential in late Roman law; consequently its essentiality in Germanic law cannot have been derived from Roman law. But the latest formulation of BRUNNER is consistent with *tr. cartae* having been derived in an external sense from late Roman practice, and having been transformed by early Germanic custom into a symbolic necessity. To be noted is the discussion of the terms *complere* and *absolvere*, pp. 697-8. In *B.Z.*, XXIX (1929-30), 324-9, F. DÖLGER examines the same book from the Byzantine side. *Cod. Just.*, 4, 21, 17 shows that *completio* and *absolutio* were only features in a special kind of sale, that, namely, where the parties went to a *tabellio*, not when they made their own document (Byzantine examples) or contracted *sine scriptis* (WENGER's ἄγραφος). Hence, though the decay of writing made the tabellionary contract prevail, *completio* and *absolutio* cannot have had dispositive effect (BRUNNER). There follows an important contribution to the vexed question of the meaning of *partibus absoluta* in Justinian's constitution, to which we cannot do justice here. DÖLGER's opinion, based on Byzantine practice, is that *absolutio-ἀπόλυσις* means the delivery of a completed document. *Partibus* is a true, not a Greek, dative, so that the *absolutio* was by one party to the other. *Nov.* 44, 1 *pr.* made the notary's *completio* come after that act, so that he had to make a fresh *absolutio* himself, back to the party from whom he got the document for the purpose of *completio*. This explains the double *absolvi* note found both in East and West. Thus DÖLGER denies late Roman *traditio cartae* only in the dispositive sense. See also C. and D. ii below.

G. BESELER, in the course of *Miscellanea Graecoromana*, *St. Bonfante*, II, 51-83, maintains (53-4) that *καταγραφὴ* means a declaration that one subjects a thing to another, and (54) that *ἀναγραφὴ* means publication, e.g. registration. J. C. NABER, in *Mnemosyne*, LVIII (1930), 166-206, continues his *Observationes de iure Romano*. The section *De chirographis et syngraphis* (180-91) is important for us: chirograph and syngraph are general names for documents, the one for such as are neither committed to a *συγγραφεὺς* nor executed with the intervention of an official or a banker, the other for such as are, in both cases excluding special types with special names, such as in the one case *ἐπόμνημα* or *ἐπίσταμα*, in the other *συγχώρησις* or *διαγραφὴ*. The Ciceronian usage and Gaius 3, 134 are considered, and with MITTEIS against BRANDILEONE the existence of a formal Greek written contract is defended.

vii. *Reception of Roman Law*. R. TAUBENSCHLAG's fine contribution to *St. Bonfante*, I, 367-440, on this subject (*Journal*, XVI (1930), 134) receives appreciative notices from P. M. MEYER, *Z. Sav.*, I (1930), 506-9, and L. WENGER, *Archiv*, IX (1930), 288-95 (important). The latter, *ibid.*, 295-8, welcomes A. J. BOYÉ's *Le droit romain et les papyrus d'Égypte* (*Journal*, XVI (1930), 133).

B. Law of persons.

i. *Juristic persons*. In *Rev. hist. dr.*, IX (1930), 616-8, J. PIRENNE summarizes an address to the *Soc. d'hist. du dr.*: *La personne civile sous l'ancien Empire égyptien*. Full civil personality was attributed to priestly colleges and temples. The application of the concept of corporation to the family group was the means whereby family property and solidarity were restored under Dyn. V and VI, and was an essential factor in effacing individualistic law at the end of the ancient Empire. P. M. MEYER, *Z. Sav.*,

L (1930), 511-2, draws attention to interesting documents. A. STEINWENTER, *ibid.* (Kan. Abt.), XIX (1930), 1-50, *Die Rechtsstellung der Kirchen u. Klöster nach den Papyri*, is an important article, contrasting the official law of Church and State (notably Justinian), which recognized the full juristic personality of pious institutions generally, was hostile to private ownership and lordship, and admitted founder's right only grudgingly, with the picture revealed by the papyri of the 6th-8th centuries. The official law having already been fully studied, we have here careful analysis and discussion of the Graeco-Egyptian and Coptic documents. Briefly, in spite of Justinian's legislation, we find in this period churches under the lordship of the episcopal church or of the pagarch, the latter without founder's claim; even in private ownership churches, which can hardly have been merely private oratories, and though this is in Arab times, the title is traced far back. Similarly, over monasteries from their beginning (P. Lond. 1913, H. I. BELL, *Jews and Christians*, 45 ff.), we find heritable and transferable rights of founders, and pagarchs with various rights of lordship. Evidently Justinian's prohibitions were not aimed at nothing. So far as documents have been published, this sort of thing seems to have been common in the East, but of course we have also evidence of proper observance of the law. To the evidence for later Byzantine conditions given at the end of the article we might add the will of the Monk Cosmas of 1005, transmitting to successors an embryonic monastery, published by G. ROBINSON, *History and Cartulary of the Greek Monastery of Carbone (Orientalia Christiana, Rome, 1928-30)*, II, 1, 133-7. But, as STEINWENTER observes, special considerations apply to cases where corporate personality had not been fully achieved. P. FOURNIER, *Rev. hist. dr.*, IX (1930), 567, draws the conclusion from this article that we have in the East the same conflict as in the Carolingian empire, between official canon law, which held churches, etc. to be public institutions, and a tolerated practice of applying the conceptions of private law to them.

ii. *Slavery*. W. L. WESTERMANN, *Upon Slavery in Ptolemaic Egypt* (New York, 1929. Not seen), which includes the publication of an early Ptolemaic *διδύμω* on the tax on sales of slaves, P. Columbia 480, is evidently an important work: P. COLLART, *Rev. de phil.*, IV (1930), 410-1; G. D. S., *Riv. di fil.*, VIII (1930), 118-9; U. WILCKEN, *Archiv*, IX (1930), 252-3. Besides this, we have two general studies which are in a way complementary: R. TAUBENSCHLAG, *Das Sklavenrecht im Rechte der Papyri*, *Z. Sav.*, I (1930), 140-69, and the first chapter of V. ARANGIO-RUIZ, *Persone e famiglia nel diritto dei papiri* (Milan, 1930). TAUBENSCHLAG gives a methodical exposition, backed by his usual rich documentation, ARANGIO-RUIZ (reproducing lectures) brings the main points into sharp relief, and abounds in suggestions and parallels. In both, the main theme is the contrast of the Graeco-Egyptian system with the Roman, in the Graeco-Egyptian a certain dualism, in the Roman severe logic. Thus, though the Egyptian slave was the property of his master, registered as such, subject to chastisement, exploitation, and alienation (but limits on export), yet he could own property, not merely enjoy *peculium*; there is self-enslavement and manumission by self-purchase, marriage with free persons, processual capacity (for example as delinquent, P. Hal. 1 and P. Lille 29). An instructive case of contrast is that of the partial manumission of a *seruus communis*, possible in Egypt, impossible in Roman law (TAUBENSCHLAG, 165-7; ARANGIO-RUIZ, 9 ff.; WENGER, *Archiv*, IX (1930), 279). On the subject of patron-rights, which occurs at the end of TAUBENSCHLAG's article, see also G. LA PIRA, *Precedenti provinciali della riforma Giustinianea del diritto di patronato*, *St. ital. di filol. cl.*, VII, fasc. 2 (1929), 145-54 (not seen. Noticed by L. WENGER, *Archiv*, IX, 287).

iii. *Civitas*. P. M. MEYER's section on this subject in his *Papyrusbericht*, VI, *Z. Sav.*, I (1930), 512-6, contains many notable points: a summary of the literature on the Cyrenean *διδύμω*, last words on the *Const. Antoniniana* (*Journal*, XV (1929), 131), the divergent views of E. BICKERMANN and E. SCHÖNBAUER on the status of Greeks in Egypt (*ibid.*, XVI (1930), 134), a dissent from A. SEGRÉ's theory that legionaries might retain Egyptian nationality (*ibid.*). The fundamental questions are brilliantly discussed in the second chapter of V. ARANGIO-RUIZ's *Persone e famiglia* (above, ii). He criticizes E. BICKERMANN's views (*Journal*, XIV (1928), 151; XV (1929), 129-30, 130-1). The Ptolemies dealt with the problem of private law substantially as the Romans did, leaving the natives to their own law, and keeping Greek law for the Greeks. True the Greeks, coming from different *παλεις*, had no proper common law, but there was an underlying unity of legal ideas which royal *διδύμω* and judicial practice could cement. The difference of laws is obvious: thus, before the Romans came, only Greeks made proper testaments. The regard shown by Augustus for common Greek nationality in the Cyrenean edicts is inconsistent with the pretended fusion of Greeks and Egyptians under the early Empire. On the contrary, the policy was to associate the Greek nation, regardless of its political divisions, with the Romans as a governing class (p. 32, n. 1). In fact up to 200 there are clear signs of Greek privilege, though the Alexandrians may have been still more favoured. Pp. 37-8 give important developments on double *civitas*, the *Gnomon* and

BICKERMANN's interpretation of *ἀστροί* (*Journal*, xv (1929), 130-1). Proofs of these doctrines are to be sought in the foundation of Antinoopolis and the position of the Arsinoite *καίτοι* as revealed by BICKERMANN. The Greeks were held together and distinct by the gymnasium. But intermarriage with natives was probably not forbidden, and, the racial qualifications for the gymnasium being strict, *οἱ ἀπὸ τῆς μητροπόλεως* took the place of *οἱ ἀπὸ τοῦ γυμνασίου* in the course of the first three centuries. Greek ideas govern even *τὰ ἐγγράφια νόμιμα*, and Egyptian ideas do not begin to dominate until the disappearance of Greek corporate life in the Byzantine period.

iv. *Family*. In *Z. Sav.*, I (1930), 450, n. 5, M. SAN NICOLÒ finds parallels to the Egyptian *δραστὴρ ἀπὸ κομπίας*. CH. B., *Rev. hist.*, CLIX (1928), 179-80, has a short note on J. CARCOPINO, *Le droit d'exposition d'enfants et le gnomon de l'idiologue*, *Mém. de la Soc. nat. des Antiquaires de France*, LXXVII (1928) (not seen).

P. M. MEYER, *Z. Sav.*, I (1930), 514-5, discusses the notifications of birth mentioned in *Journal*, xv (1929), 131; xvi (1930), 135. The Karanis diptych is commented on by U. WILCKEN, *Archiv*, ix (1930), 242-3, the suggestion being made that the expansion may be: *d(e) s(a) r(e) s(xemplum) s(ditum)*—or *s(datur)*—*b(eneficio) t(utoris) s(upra) s(cripti)*, *beneficio* meaning "through the mediation of." V. ARANGIO-RUIZ, in chapter 3 of his *Personae e famiglia* (above, ii), considers that in native Egyptian law the cohesive function of the *patria potestas* was performed by joint interest in family property founded on marriage contract, a very interesting system, the existence of which can be proved up to the beginning of the Roman period. In Roman terms it means usufruct to the father or parents, *nuda proprietas* for the offspring, but this is too definite. The father (eldest son) can alienate, but requires the concurrence of the children (brothers). There is thus an organ of the family corporation. The vesting of the deferred interests leads to an extreme *morcellement*, prolonged in a state of indivision for generations, though the author thinks that some of the more incredible fractions may represent some legal artifice to accommodate native custom to Roman conceptions. Under such a system sons cannot have had much property in their parents' lifetime. But the dismembered Greek family, the precursor of Justinian's, also occurs, e.g. P. Oxy. 1208 of 291, an anticipation of Constantine's *bona adventicia*. At the beginning of this chapter ARANGIO-RUIZ holds it to be a mistake to speak of *materna potestas* (*Journal*, xvi (1930), 135), the semblance of which may be due to the *de facto* supervision naturally assumed by older relations, e.g. also the grandmother, a brother, even a sister. Similarly, the mother as *ἐπακολουθήτρια* by the side of the tutor of her fatherless children (*ibid.*) may not be much more than an attempt to give effect to practical considerations, of which the existing law of tutorship took no notice. The same system is found in late classical Roman law—the mother as *administratrix* of the property, but alongside of a male tutor—but when G. LA PIRA, *Riflessi provinciali nel diritto tutelare classico romano*, *Bull. Ist. Dir. Rom.*, XXXVIII (1930), 53-73, on the strength of a papyrus putting back the date of the appearance of this system in Egypt to 132 A.D. (G. VITELLI in *St. in onore di V. Loret*, not seen), argues that the Romans may have borrowed the idea from Egypt, one is inclined to reflect that the same causes may have produced the same results in both cases. On *tutela*, see also P. M. MEYER, *Z. Sav.*, I (1930), 516.

v. *Marriage*. In chapter 4, V. ARANGIO-RUIZ recognizes in Egyptian custom two types of marriage, the lower being probably derived from morganatic unions, and in Greek marriage two stages of documentation, the second of which, *συγγραφή συνοικεσίου*, he suggests was for publicity in the matter of immovable property. In the Roman period the lower Egyptian marriage fused with the first phase of the Greek, to form a new institution, the *γάμος ἄγραφος*, which again was readily open to interpretation as identical with the classical Roman marriage. We can barely refer to the very interesting study of P. Oxy. 237 (76 ff.) and to the concluding remarks on *Nov.* 74.

P.S.I. ix, 1075 (458 A.D.) is a wife's petition (for what, is not clear) in connexion with a *repudium* made or, according to WILCKEN, threatened by her husband: P. M. MEYER, *Z. Sav.*, I (1930), 517; U. WILCKEN, *Archiv*, ix (1930), 246; G. SCHERILLO, *Riv. di Storia del Dir. Ital.*, II (1929), 457-506, III (1930), 69-95. Part of her grievance is connected with her *φθόριον ἔδρον*, an expression hitherto unknown, but certainly meaning a *donatio nuptiale* (*ibid.*) enters exhaustively into the papyrological evidence from the 4th century onwards, concluding that from the husband's side there may be (i) *arrha sponsalicia*, perhaps a relic of bride-purchase, (ii) *ἔδρον*, the chief gift, which seems to have provided widow's dower, but is conceived of as *pretium pudicitiae*; (iii) *ἱερόπαιον* or *ἀντίπαιον*, a name perhaps suggested by *Nov.* 97, generally of furniture, distinct from (ii) because found given even to a woman remarrying. The second article considers how far the practice of the papyri corresponds to Roman law, pre-Justinian,

Justinian's, and later. The materials are very well set out, and interesting conclusions are reached. A. MOMIGLIANO, *Riv. di fil.*, viii (1930), 264-5, mentions cognate studies by E. VOLTERRA, *Studi sull' Arrha Sponsalicia*, *Riv. ital. per le scienze giur.*, ii (1927), and iv (1929), completed by a separate publication under the same title. Rome: Grafia, 1930, pp. 96 (not seen).

vi. *Colonate*. P. M. MEYER, *Z. Sav.*, I (1930), 533, mentions an article published by M. ROSTOVZEFF in *Journal of Land and Public Utility Economics: The problem of the origin of serfdom in the Roman Empire* (see *Journal*, xvi (1930), 130).

vii. *Monks*. In *B.Z.*, xxx (1929-30) (*Festgabe Heisenberg*), 669-76, B. GRANIĆ writes on *Die privatrechtliche Stellung der griech. Mönche im v. und vi. Jahrh.* The monk in spirit said good-bye to this world and its law, but the secular law had to regulate his position, and the legislation of Justinian consolidates the practice of more than 200 years. One may say that the State entered, as far as possible, into the monastic ideals of poverty, chastity and obedience. The collection of materials is welcome, but papyri are not among them.

C. Law of property.

Very high praise is given by U. WILCKEN, *Archiv*, ix (1930), 237-8, to W. KUNKEL's article on the alienation of catocic land, *Z. Sav.*, xlviii (1928), 285-313 (*Journal*, xv (1929), 131-2). É. CUQ, *Un rescrit d'Auguste sur la protection des res religieuses dans les provinces*, *Rev. hist. dr.*, ix (1930), 383-410, maintains against F. CUMONT that the recently published Augustan inscription from Nazareth (?) is in full agreement with the accepted civilian account of the protection of graves in Roman law. Text pp. 391-2. There is nothing of special interest to papyrologists, however. *Iusta causa traditionis*, *Romanist. Beitr. z. Rechtsgesch.*, Heft 4 (Berlin u. Leipzig, 1930. viii + 208 pp.), by A. ENHARDT, is an attempt to determine how Roman law up to the *Corpus Iuris* conceived of conveyance. It is probably impossible for an English lawyer to do justice to the directly papyrological part (ch. xvi, 156-84) in isolation. With this reserve we summarize the writer's position there. The sharp distinction between contract to convey and performance by conveyance is only inchoate in classical law, its clear formulation being Byzantine, and therefore in the Digest due to Justinian. Justinian's doctrine is probably a reception from Byzantine Egypt, where *καταγραφή* had come to mean *traditio cartae*, and involved a sharp line between the contract of sale and the conveyance. This evolution of *καταγραφή* is, according to the author, who follows PARTSCH rather than SCHÖNBAUER, a very natural one, but we cannot appreciate his arguments here. It has not escaped him that the same distinction is involved in classical law by the requirement of mancipation, but mancipation, apart from its early obsolescence in the Byzantine period, is primarily the act of the alienee, whereas Byzantine *traditio*, like *καταγραφή*, is that of the alienor. The sale of Byzantine Egypt is *πράσις*, not *ωνή*, and *ὁμολογῶ πεπρακέναι καὶ καταγεγραφεῖν* is not the counterpart of *emī mancipioque accipit*—a very happy illustration. Thus the *tr. cartae* of later Byzantine law may be a derivation from *καταγραφή*, facilitated by the stress laid in pre-Justinian law (Ravenna documents) on *traditio* by the seller. See A. vi above and D. ii below. E. BETTI, *Il dogma bizantino della φύσις τῆς παραδόσεως*, *St. Bonfante*, I, 303-34, studies a closely allied subject. He too holds that the preponderance of the will of the alienor in *traditio* is Byzantine and, where supported by the Digest, interpolated. Should parties not be agreed as to *causa*, *traditio* can only pass ownership if it be regarded as an abstract conveyance. Thus Julian D. 41, 1, 36 is interpolated. The same conclusion is reached by R. MONIER, *Le malentendu sur la causa traditionis*, *St. Bonfante*, III, 217-31. Julian is clearly interpolated, and the classical view must be sought in the *l. contraria*, Ulpian D. 12, 1, 18, though there too is interpolation. B. KÜHLER, *Res mobiles u. immobiles*, *St. Bonfante*, II, 345-61, after pointing out that this distinction is not classical, studies the assimilation to land of certain chattels and of other rights (*panes civiles*) by fiction in later law. Greek influence is probable; compare the treatment of the alienation of slaves and ships, analogous to that of land, in Egypt (pp. 349, 361).

In *Phil. Woch.*, I (1930), 678-82, W. SCHUBART, reviewing E. SCHÖNBAUER, *Beitr. z. Gesch. d. Bergbaurechts* (*Journal*, xvi (1930), 135-6), gives a careful analysis, but refrains from criticism.

D. Law of obligations.

i. *General*. Useful points of Greek commercial law are raised by F. OERTEL reviewing in *Z. Sav.*, I (1930), 565-76, especially 573-4, E. ZIEBARTH, *Beitr. z. Gesch. des Seeraubs u. Seehandels im alten Griechenland*, Hamburg, 1929. There have been a number of reviews of V. ARANGIO-RUIZ, *Lineamenti del sistema contrattuale nel diritto dei papiri*, Milan, 1928 (*Journal*, xv (1929), 132): P. M. MEYER, *Z. Sav.*, I (1930), 524-5, a compact summary; G. A. PETROPOULOS, *Byz.-neugriech. Jahrb.*, VII (1930), 480-5, in Greek;

M. SAN NICOLÒ, *O.L.Z.*, xxxiii (1930), 355, appreciative; and W. KUNKEL, *Gnomon*, vi (1930), 421-5, analysis with criticism. Of course various items in P. M. MEYER's and U. WILCKEN's surveys (above, A. i) are relevant; in the latter note p. 230, on the papyri published by C. C. EDGAR, *Journal*, xiv (1928), 288-93.

ii. *Sale*. P. M. MEYER's *Bericht*, vi (A. i), p. 526, notes sale documents in P.S.I. ix; also (p. 525) gives an account of work, mentioned *Journal*, xv (1929), 130, by A. SEGRÈ, who continues on the same subject in *Note sulla compravendita e il pagamento del prezzo in diritto greco e romano*, *Aegyptus*, x (1929), 207-41. He denies that Greek law knew consensual sale, or indeed the contract as distinct from the reciprocal conveyances, though in sales of catagraphable objects *arrha* bound the seller to make *καταγραφή* against full payment, and punished a withdrawing buyer by its forfeiture. The effect of *καταγραφή* without payment would depend on whether the non-payment was expressed on its face or not; in the latter case payment would be secured by fictitious syngraphic loan, but third parties would get good title from the buyer. The fully developed procedure in a catagraphic sale seems (P. Oxy. 227) to have been that the vendor drew up, it might be *ἐν ἀγνῷ*, a document of sale, the buyer paid the *ἐγκύκλιον*, and the tax-farmer applied to the *agoranomus* (later also banker, *καταλογεῖον*) for *καταγραφή*, which process involved the transformation of the document into an agoranomic one and its registration. Thus *καταγραφή* was a *transcriptio* in the sense of the Ravenna documents: *vendo, mancipio et ex iure meo in vestro iure dominioque transcribo*. In the East *καταγραφή* became simply a document drawn by a *tabellio*, or signed by three credible witnesses, and the distinction (*Cod. Iust.* 4, 21, 17) between sale *cum* and *sine scriptis* is the same as that between sale of catagraphable and non-catagraphable objects. Roman law failed to impose *traditio* of land in the East, and even in the West the document tends to supersede it, but not entirely (Paul, *Sent.* 5, 12, 2). On the question of the rule in *Inst.* 2, 1, 41, SEGRÈ follows E. ALBERTARIO: it is classical only for mancipation. F. PRINGSHEIM maintains once more in *Eigentumsübergang beim Kauf*, *Z. Sav.*, I, 333-438, that the rule is entirely interpolated. He notes, p. 347, the Egyptian practice of handing title-deeds to the buyer, and, pp. 387-9, considers the papyrological counterparts of the *fidem sequi* of the Institutes passage, and the effect of *καταγραφή* on the ownership in the absence of payment of price. See P. M. MEYER, *ibid.*, 531 ff., and A. EHRHARDT's recent work (above, C). Some remarks by L. WENGER, *Archiv*, ix (1930), 267-8, on the development of sale as a contract should also be noted. See also above, A. vi.

In *Sull' Atto della Vendita in Diritto Giustiniano*, *St. Bonfante*, iv, 503-64, E. CARUSI, after giving a careful *résumé* of G. CORNIL's recent article (*Journal*, xv (1929), 132) and a rich bibliography on the oriental side, considers the evidence of the Syro-Roman Law-book (534 ff.), and then studies the meaning of Justinian's legislation (548 ff.). This he holds was a compromise, which saved the Roman principle of irrevocability of consent in theory, but made concessions to Eastern custom which, limited as they appear, are far-reaching. The *ius poenitendi* was allowed for not yet perfected written contracts, but denied for oral; then by a side wind *arrha* was introduced as a penalty of *poenitentia* in all cases, oral as well as written contracts, and perfected written as well as not yet perfected written. M. RICCA-BARBERIS, *L'evizione obbligo-limite del venditore romano*, *St. Bonfante*, ii, 127-84, contends, against the received opinion, that the Roman seller was bound to make good title; in particular that *vacuum possessionem tradere* meant conveyance. The term *παράχωρεῖν* in 2nd and 3rd cent. papyri is witness of this (pp. 171-2). In the Byzantine period transfer of ownership is of the very essence of sale.

A very recent arrival is *La garantie contre les vices cachés dans la vente romaine*, Paris, 1930, xvi + 216 pp., by R. MONIER. The Introduction treats of Babylonian and Greek sale, but, to judge by the table of texts, there is not much papyrology.

iii. *Guarantee*. L. WENGER, *Archiv*, ix, 285-7, gives close consideration to É. CUQ's *Cautionnement mutuel et solidarité*, *Mél. Cornil*, I, 155-80 (*Journal*, xiv (1928), 154).

iv. *Delict*. There is no special papyrological interest in F. DE VISSCHER's *La nature juridique de l'abandon noxal*, *Rev. hist. dr.*, ix (1930), 411-71, unless perhaps an excursion into primitive Greek law (pp. 445-8), but this is not true of the summary which he gives, *ibid.*, 606-8, of his *Le délit d'iniuria commisa par un esclave: Droit romain et droit alexandrin*, *Rev. belge*, ix (1930), 702 (not seen). When the delict committed by a slave is *iniuria*, we learn from Ulpian D. 47, 10, 17, 4, that his master, instead of accepting the noxal action, condemnation in which would leave him still free to surrender the slave, might hand him over without ado for *verberatio*. P. Hal. I, 188 sq. makes the alternative to summary *verberatio* the acceptance of full liability by the master. Thus for *iniuria* there was no noxal action at Alexandria, and J. PARTSCH, *Archiv*, vi (1913), 67, is wrong on this point. The suggestion is that the praetor first copied the Alexandrian system, and that the noxalization of the action against the master was introduced later, in the interest of uniformity.

E. *Law of succession.*

Recently published testamentary documents of the Roman period are mentioned by P. M. MEYER, *Z. Sav.*, I (1930), 517-8. Add that edited by A. SEGRÈ in *St. Bonfante* (above, A. iv). *Ricerche di diritto ereditario romano*, Rome, 1930, 132 pp., by the same, appears on a superficial examination to be a lively and stimulating study of the Roman law of succession, the special characteristics of which are brought out by contrast with Germanic, Greek and Hellenistic law. The evidence for the last-named is naturally mainly from Egypt; papyrological points which occur are the system of κληροί pp. 16-7, the right to legitim p. 31, hereditas ex certa re p. 33, the meaning of κληρονομείν in the *Gnomon* p. 34, entry of heir by ἐμβάδεια pp. 91-2, unlimited liability for hereditary debts, tempered by a *iūs abstinendi* p. 96.

F. *Law of procedure.*

L. WENGER, *Z. Sav.*, I (1930), 500-2, has a further *Miszelle* on the new demotic procedural code discovered by W. SPIEGELBERG. He regards E. SEIDL's interpretations of the document (*Journal*, xvi (1930), 137) with high favour, and emphasizes its importance as being, or pointing to, a possible Egyptian source of Diodorus, I, 79, 1. See further: M. SAN NICOLÒ, *D.L.Z.*, 1930, 184-7; P. M. MEYER, *Z. Sav.*, I (1930), 536.

At the last moment *Zur Gesch. der Prozesseinleitung im ptol. Recht*, a Munich dissertation by E. BERNEKER, Ansbach, 1930, 112 pp., comes to hand.

A detail of Ptolemaic procedure is dealt with by M. SAN NICOLÒ, *B.Z.*, xxx (1929-30) (*Festgabe Heisenberg*), 158-62: "Ἐγγυος παραμονῆς. He rightly claims that P. Mich. 3106 of 287 (C. C. EDGAR, *Journal*, xiv (1928), 291 ff.) proves that ἔγγυς παρ. in P. Hal. I, 46 ff. means security for production of a person in court, not, as the editors proposed, security for satisfaction of judgement. The general effect of the πρόσταγμα of P. Mich. is that an ἔγγυος παρ., provided he does produce his man, though late, is to be freed from his bond. It decides this in a particular case: ἀφείσθω τῆς ὑπερφημερίας (ll. 8-9), and as a general principle: ἀφείσθωσαν τῆς ἔγγυος καὶ μὴ ἐκκλείσθωσαν τῆς ὑπερφημερίας (ll. 11-13). To get rid of the obvious difficulty created by the variation of phrase, EDGAR proposed to insert between ll. 8 and 9, after ἀφείσθω: τῆς ἔγγυος καὶ μὴ ἐκκλείσθω, and to translate μὴ ἐκκλ. τῆς π.: "shall not be debarred from exceeding the time." SAN NICOLÒ proposes a translation which has the merit of making the insertion between ll. 8 and 9 unnecessary: "shall not be precluded on account of having exceeded the term." U. WILCKEN, however, approves the insertion: *Archiv*, ix (1930), 235-6 (other points also). Philologists must decide whether the use of the genitive suggested by SAN NICOLÒ is too harsh. EDGAR's translation might, perhaps, be improved if we make ἡ ὑπερφημερία mean "the days of grace," in reference to some established system of granting extension of time, which would help to explain the mysterious royal indulgence to ἔγγυος παραμονῆς.

U. WILCKEN, *Archiv*, ix (1930), 232, comments on the very interesting P. Cair. Zen. III, 466 (*forum, asylum*).

Reviewing L. WENGER's *Prætor u. Formel* (Munich, 1928) in *Rev. hist. dr.*, ix (1930), 794-6, H. LÉVY-BRUHL gives a very lucid account of the positions reached by recent studies of the formulary procedure.

A. FLINIAUX, *La postulatio simplex: Contribution à l'histoire des modes de citation au bas-empire*, *Rev. hist. dr.*, ix (1930), 193-223, gives a historical study of the first step taken by plaintiff in a normal action, as it appears both in legislation (*Cod. Theod.*, post-Theod. Novels, *Corpus Iuris*) and in Romano-Egyptian practice under the later empire. This act is an *ex parte* (*simplex*, *μονομήνης*) application (*postulatio*, *ἐντυχία*) by plaintiff to the court demanding, for reasons stated, citation of defendant. Service would appropriately be by an officer of court, but under the principate, and perhaps later, there is the possibility of participation in service by plaintiff, as is illustrated by the Egyptian system of παραγγελία. Anyhow, from 322 onwards (*Cod. Theod.* 2, 4, 2) *postulatio simplex*, which in writing would amount to a *libellus actionis*, followed by an interlocutory order for or refusal of service (*interlocutio iudicis*), was the normal first stage in an action, the parallel step in rescript procedure being *allegatio rescripti*. This initial step is a constant up to and including Justinian. Thus the author maintains that in the important series P. Oxy. xvi, 1876-81 (*Journal*, xiv (1928), 155), we must see nothing exceptional, but just the normal opening of Theodosian *litis denuntiatio*, i.e. *postulatio simplex* and *interlocutio*. Incidentally (pp. 207-10) he rejects the view of P. COLLINET and E. ANDT that the *post. in iudicio deposita* of *Cod. Theod.* 4, 14, 1, belongs to rescript procedure.

A. STEINWENTER, *Die Litiskontestation im Libellprozess*, *Z. Sav.*, I (1930), 184-211, enquires what the classical term *litis contestatio* means in early Byzantine procedure, especially to Justinian's compilers. In

the *Cod. Theod.* its primary and proper meaning (confusion is created by allied usages) is the moment at which *conflictus partium de principali negotio* (*Cod. Theod.* 4, 14, 1) is reached: cf. P. Lips. 38 of 390 (pp. 190-1). What is ἡ τοῦ δικαστηρίου προκήρυξις of P. Oxy. 67 (338; cf. P. Lips. 33 of 368)? It must be the *lis coepta*, etc., *litis exordium*, etc. of *Cod. Theod.*, and STEINWENTER holds that these phrases cover the whole initial oral proceedings, and are therefore wider than *lit. cont.*, which in *lit. denuntiatio* procedure occurs when the defendant has put in his defence orally. The same conception appears in the libellary procedure: *Cod. Theod.* 2, 4, 6; *Nov. Val.* 35, 13; P. Oxy. 1881; P. Princeton 55. *C. Gl. L.* II, p. 124², fixes *lit. cont.* or δίκη ἀρχαία as ἀνταράξεις ἐν δικαστηρίῳ, i.e. as the joinder of issue in court, therefore orally. Justinian (*Cod.* 3, 1, 14, 4) merely sharpens the somewhat misty Theodosian conception: *lit. cont.* is *narratio* plus *responsio*, and the moment was doubtless registered by some act of court. It is hard to see why the moment of the oral declarations was preferred to that of the delivery of the contradictory libelli. STEINWENTER suggests the influence of rhetoric as the explanation, and observes that we are wrong to think of the libellary procedure as mainly in writing. S. RICCOBONO, against M. WLAŚAK, maintains that this conception of *lit. cont.* is derived from the classical *cognitio extra ordinem*, but STEINWENTER, citing P. Mich. 1320, considers the connexion not proved. What the article perhaps does not bring out sufficiently is that a joinder of issue is a natural necessity of all formal debate, especially legal, and that if the conception of *lit. cont.* had not existed, it would have had to be invented. From the functional point of view, at least, the connexion between classical and Byzantine *lit. cont.* is plain.

G. Public law.

K. WILHELMSON, *Zum röm. Fiskalkauf in Aegypten*, Tartu, 1930, 20 pp. (*Acta et Commentt. Univ. Tartuens. (Dorpatensis)*, B. XVIII, 5), draws attention to a peculiarity of sales and leases by the fisc: they were revocable on a better offer being made. This suggests a possible origin of the system of *in diem addictio* in private sales, and explains *Cod.* 11, 32, 1 and 11, 71, 2. See also § 5.

There have been a number of reviews of *Die Augustus-Inschrift auf dem Marktplatz von Kyrene* by J. STROUX and L. WENGER (*Journal*, XVI (1930), 137): J. G. C. ANDERSON, *J.R.S.*, XIX (1929), 219-24, a very close study, appreciative, but with dissents; V. ARANGIO-RUIZ, *Riv. di fil.*, VIII (1930), 220-30, noting a general approximation of views between the leading commentators, and citing a study of the *repetundae* procedure by G. LA PIRA, *St. ital. di fil. cl.*, VII (1929), 59 ff. (not seen); W. Graf ULLMANN, *Gnomon*, VI (1930), 121-32, a comprehensive and rather critical review, embracing also A. VON PREMERSTEIN's and V. ARANGIO-RUIZ's articles.

La répression de la magie et le culte des gentils au IV^e siècle, *Rev. hist. dr.*, IX (1930), 669-701, by F. MARTROYE, argues that Constantine and his earlier successors did not persecute the ancient Roman religion, but that the laws which have been taken in this sense were really directed against magical divination. No papyrological material is used. Cf. *Journal*, XIV (1928), 155, i.f.

7. PALAEOGRAPHY AND DIPLOMATIC.

K. OHLY's *Stichometrische Untersuchungen* is reviewed in some detail by TH. BIRT (*Phil. Woch.*, I (1930), 297-317). The reviewer, though appreciative, disagrees with some of OHLY's conclusions.

E. BICKERMANN's *Beiträge zur antiken Urkundengeschichte* (III. *Ἐντεῦξις und *Υπόμνημα, *Archiv*, IX, 155-82) discusses the formulae of these documents.

JOUGUET publishes a letter concerning the registration of libelli; see § 3, *Roman*.

E. GERSTINGER in *Ein neuer Beitrag zur Geschichte der griechischen amtlichen Kanzleischrift* (*Wiener Studien*, XLVII (1930), 168-72) publishes P. Vindob. 24473, an official letter of the second century from Soenopaei Nesus, with a photograph and a discussion of Chancery Hand. This is a useful addition to the material for the study of this type of hand. The date is probably about the time of Hadrian. (See *Journal*, XVI, 127.)

TH. BIRT, *Zur Tachygraphie der Griechen* (*Rhein. Mus.*, LXXIX (1930), 1-6), discusses the origin of Greek shorthand. He suggests that its antiquity goes back at least to the time of Plato and that it was the chosen medium of the Sibyls.

H. J. VOGELS' *Codicum Novi Testamenti Specimina* (Bonn: P. Hanstein, 1929) gives photographs of two papyri, P. Mich. 1571 and P. Lond. 1532.

8. LEXICOGRAPHY AND GRAMMAR.

V. MARTIN argues convincingly in *Archiv*, ix, 218-21, that *παυλίον* in *Sammelbuch* 1 (= *P. Gen. ined.* 255), 7247. 26, 7248. 3 and the Edict of Diocletian is the Latin *papilio* in its later sense of "tent" (whence French *pavillon*), and adds this to the other reasons for assigning *Sammelbuch* 1 to the third century. FR. ZUCKER's article, *Über Sprache und Stil frühbyzantinischer Urkunden*, in *B.Z.*, xxx (1930), 146-55, is a discussion, with ample illustrative quotations, of the style of some late papyri. S. KAUSCHISCHWILI says in *Phil. Woch.*, l (1930), 1166-8, that the Georgian version of *ἐπιούσιος ἄρτος* means "Brot für den morgigen (oder: von dem morgigen) Tag."

Four works are not yet accessible to me: A. FRIDRICHSEN, *ΑΠΟΣ ΕΠΙΟΥΣΙΟΣ; Eine Nachlese*, in *Symbolae Osloenses*, ix (1930), 62-8.—H. GLITSCH, *De Ptolemaei et Apollonii, Glaucias filiorum, quaestiones linguisticae*, Weidae Thuringorum, 1929 (mentioned in *Aegyptus*, x, 352, no. 7730, where the title is given in this impossible form).—O. HORNICKEL, *Ehren- und Rangprädikate in den Papyrusurkunden: Ein Beitrag zum römischen und byzantinischen Titelwesen*. Dr.-Diss. Giessen. Giessen, 1930. Pp. x+41.—A. STEIN, *ΕΠΙΣΚΕΨΙΣ*, in *Charisteria (Alois Rzach zum achtzigsten Geburtstag dargebracht)*, Reichenberg, 1930, 176-80.

During this year Part v of the new edition of LIDDELL and SCOTT appeared (*θησαυροποιέω—κῶψ*, pp. 801-1020, Oxford, 1930).

The following reviews of works already mentioned in these bibliographies have appeared: F. PREISIGKE, *Wörterbuch der griechischen Papyrusurkunden*, reviewed by W. SCHUBART in *O.L.Z.*, 1931, 17-18 (not yet accessible to me), and by F. BILABEL in *Phil. Woch.*, l (1930), 1389-93; MOULTON and MILLIGAN, *Vocabulary of the Greek Testament*, viii, reviewed by P.-L. COHREROU in *Rev. hist. rel.*, xcvi (1930), 136-8 (inaccessible); L. WENGER, *Aus Novellenindex und Papyruswörterbuch*, reviewed by A. GRUPE in *Phil. Woch.*, l (1930), 46-8; B. LAUM, *Das Alexandrinische Akzentuationssystem*, reviewed by E. HERMANN in *Phil. Woch.*, l (1930), 228-33; F. M. ABEL, *Grammaire du grec biblique suivi d'un choix de papyrus*, reviewed by A. DEBRUNNER in *B.Z.*, xxix (1930), 346-7, and by E. DRERUP in *Oriens Christianus*, 3. S., iii/iv (inaccessible); LIDDELL and SCOTT, new edition, Parts iii and iv, reviewed by PAUL SHOREY in *Cl. Phil.*, xxv (1930), 82-3.

9. GENERAL WORKS, BIBLIOGRAPHY, MISCELLANEOUS NOTES ON PAPYRUS TEXTS.

The English version of DEISSMANN's *Light from the Ancient East* is reviewed by C. J. KRAEMER in *Cl. Weekly*, xxiii (1930), 140-2.

J. (=G. v.) MANTEUFFEL publishes an article in Polish on the science of papyrology and its results: *Papyrologia jako nauka pomocnicza historii*, in *Przegląd Historyczny*, viii (1929), 70-90. A Polish article on the social relations of the inhabitants of Kerkeosiris by J. R. LUKEŠ I know only from the Bibliography in *Aegyptus*, x, 360, no. 7862: *Sociální poměry obyvatelstva v Kerkeosiris*, in *Sborník filol. fak. Univer. Komenského*, iv, Bratislava (1926) (rev. *Listy Fil.*, liv (1927), 282-7, by G. HEJZLAR). The same remark applies to two other general articles on the papyri and the light thrown by them on life in Egypt: A. DIRKING, *Griechischen (sic) Leben in den Papyri*, Paderbo[r]n, 1929 (*Aegyptus*, x, 360, no. 7861); and A. B. HAWES, *Light reading from the papyri*, in *Cl. Journ.*, xxv (1930), 535-44 (*Aegyptus*, x, 336, no. 7457).

M. HOMBERT continues his *Bulletin papyrologique* (iv, 1929) in *Byzantion*, v (1929-30), 655-70. In the *Bibliographische Beilage of Gnomon* in 1930 references to papyrology and allied subjects are to be found as follows: 2, p. 15; 3, p. 24; 4, p. 29; 5, p. 37; 6, pp. 44-5. P. M. MEYER continues his *Juristischer Papyrusbericht* (vi, Oct. 1927-Oct. 1929) in *Z. Sav.*, l (1930), 503-30. For other bibliographies see *B.Z.*, xxix (1930), 391-3 (*Papyruskunde*), and *Byz.-neugriech. Jahrb.*, vii (1930), 248-57 (*Paläographie, Papyrus, Handschriften und Bücherkunde*).

H. HENNE publishes some additions and corrections to *Papyrus Graux N° 3 à 8 et papyrus du Caire N° 49427* in *Bull. Inst. fr. Arch. Or.*, xxviii (1929), 11-14. M. SAN NICOLÒ in his *ΕΠΙΟΥΣ ΠΑΡΑΜΟΝΗΣ* in *B.Z.*, xxx, 158-62 (see also § 6), deals with P. Hal. 1, *δίκη ψευδοπαρυπίου*, and P. Mich. Inv. No. 3106, edited by EDGAR in *Journal*, xiv, 291 ff.

10. MISCELLANEOUS AND PERSONAL.

Reference must be made to the recently founded *Société royale égyptienne de papyrologie*, a body which promises to play a most useful part and to which I take this opportunity of extending a cordial welcome. An account of it is given by GEORGES MEYER in *Le Temps*, 8 June, 1930; see, too, *Rev. belge*, ix (1930), 697, and *Aegyptus*, xi (1931), 102.

The "Semaine égyptologique et papyrologique" at Brussels, 14-20 Sept. 1930, which the present writer was unfortunately unable to attend, was a great success and did much useful work. Accounts of it are given in *Chron. d'Ég.*, VI (1931), 148-54 (an announcement in advance, *Rev. belge*, IX (1930), 698-9), in *Aegyptus*, XI (1931), 97-101, and in *Rev. belge*, IX (1930), 1095-1100. Two communications made to the Congress by A. CALDERINI are published in *Aegyptus*, XI (1931), viz. *L'opera della scuola di papirologia di Milano*, pp. 3-9, and *Intorno al "Dizionario dei nomi geografici e topografici dell'Egitto Greco-Romano"*, pp. 10-12.

M. HOMBERT gives an account of the small papyrus collection of the Fondation Reine Élisabeth (*Les papyrus de la Fondation Égyptologique Reine Élisabeth*) in *Chron. d'Ég.*, V, 269-71. The Greek papyri seem to be for the most part very fragmentary.

F. BILABEL, in a review of the *Wörterbuch* (*Phil. Week.*, L (1930), 1390), mentions that GRADENWITZ's *Conträriindex* is in the press under his supervision, and that he is himself preparing an historical prosopography of Hellenistic-Roman-Byzantine Egypt.

A. CALDERINI gives an account of the Italian excavations at Tebtunis. The plan of the town, which was partly native Egyptian of the usual type, partly Greek, on a regular plan (two quarters), was laid bare. Some papyri were found, forming a family archive. These are to be edited by VITELLI: *Scavi della Missione Archeologica Italiana a Tebtunis (Fayyum)* in *Aegyptus*, X (1929), 295-6. P. KOSCHAKER describes the excavations at Dura: *Ausgrabungen in Dura-Europos*, in *O.L.Z.*, XXXIII (1930), 162-71. It appears from a note in *C.-R. Ac. Inscr. et B.-L.*, 1929, 47 that papyri have been found at Dura. This opens up new and exciting possibilities.

H. I. BELL calls attention to the rediscovery of some of the missing Petrie Papyri in *Archiv*, IX, 227, and *Aegyptus*, X (1929), 302.

A very serious loss to almost every branch of Egyptian studies, and not least to those concerned with the Graeco-Roman period, is the unexpected death of WILHELM SPIEGELBERG, which occurred last December. His immense energy and many-sided versatility were combined with a rare philological acumen; and the problems upon which he threw new light are many. The removal of such a worker from the already small band of Demotic scholars is an irreparable blow. There is a short notice of him by W. SCHUBART in *Forsch. u. Fortschr.*, VII (1931), 46.

Another great scholar whose loss must be recorded here is AUGUST HEISENBERG (died 22 Nov. 1930). His work was done mainly in the sphere of general Byzantine studies, but he collaborated with L. WENGER in the important volume of Byzantine papyri at Munich, and he was always awake to the importance of papyrology. A notice of him by FR. DÖLGER appears in *Forsch. u. Fortschr.*, VII (1931), 14-15.

A bibliography of LUMBROSO's works is given by V. SCIALOJA in *Commemorazione del socio Giacomo Lombroso*, Acc. Naz. dei Lincei, pp. 38.

A propos of O. GRADENWITZ's seventieth birthday, E. KIESSLING publishes a biographical note: *Otto Gradenwitz zum 70. Geburtstage*, in *Forsch. u. Fortschr.*, VI (1930), 191.

NOTES AND NEWS

During the past winter the Society has maintained three expeditions—at Armant, at El-'Amarnah and at Abydos.

The Armant Expedition began excavations on November 1st, and ended early in February. As a result of the season's work, the excavation of the Bucheum and Baqaria has been completed. In the Bucheum the two tombs left over from last year and the "Well" found in the first season were cleared. In all three cases water had damaged the burials and only a few broken faience amulets were recovered. The remainder of the season's work in the Bucheum consisted of a minute examination and recording of architectural features, which has produced interesting and important results.

The presence of water and the dangerous state of the rock complicated work in the Baqaria. Twenty-five burials were cleared, including six found but not excavated last year. In both pits most of the burials were much decayed, and it was seldom possible to do more than plan and photograph the skeleton. In the northern (Ptolemaic) pit, however, one cow was waxed solid, another was cleaned down to the skeleton and preserved in a similar manner, and the head of a third, on which the gilt was in good condition owing to the use of bitumen in the mummification, was also preserved. In the southern pit, which is of Roman date, the cows were buried under red-brick vaults, but in most cases water had destroyed all but the bones. From the passage of this pit four offering-tables were obtained, three being inscribed. A stela dating from the reign of Commodus was also found.

A certain amount of cemetery work was undertaken. To the south-east of the Baqaria a few protodynastic burials in large pots were found, and a number of poor graves of the Roman and Coptic periods. On higher ground at the edge of this cemetery, where there has been considerable denudation, the bottoms of several grain pits were found which yielded a number of Badarian sherds. A preliminary excavation was made in a large and promising early predynastic settlement. Finally, a large but badly robbed Roman camp in the desert was cleared.

At El-'Amarnah attention was first turned to the completion of the excavation of the North Suburb begun by Dr. Frankfort some years ago, and this part of the site has now been finished. From here came a beautiful little painted head in limestone of one of the princesses, which has been allotted to the Society in the division at Cairo; here also was found a jar containing twenty-three bars of gold together with many fragments of silver and a small silver figure with a gold cap. It is possible that the whole was a robber's hoard. A considerable amount of new evidence was gathered for the reconstruction of the house-decoration of the period.

The excavation of a large mound in the wady north of the town was next begun and a fine house was revealed; not only were the inner door-jambs and lintels made of stone, but a magnificent painted lintel was found lying on its face between the north loggia and the central room. It bore an inscription giving the name of the owner of the house,

Hatiay, Overseer of the King's Works, and also cartouches of the King and Queen, though that of Akhenaten had been erased. The house stood in fine grounds, having on its north side a large chapel, containing two altars on which traces of colour are preserved.

The excavation of a great wall running north and south between the cultivation and the house occupied by the excavators was then undertaken. A large gateway was found, flanked by false doors with fine stone thresholds, topped by a double uraeus cornice, which must have supported statues of the royal family, as several broken fragments showed. In the gateway itself and near it, a large quantity of fallen wall-decoration was found, much of it brilliantly coloured and of fine technique. Shortage of funds made it necessary to close the work before the excavation of the wall was finished, and great things are expected when the ground level is reached; work will begin here next season, provided that sufficient funds are raised to furnish an expedition.

Many objects found this season—together with casts of the objects kept in Cairo—reproductions of some of the wall-painting, plans and a model of a typical 'Amarnah house will be shown at the Society's summer exhibition this year.

There is little fresh news to report regarding the Archaeological Survey at Abydos, where Miss Calverley and Miss Broome have been working hard all winter and making steady progress with the material required for the first volume of the Seti Temple publication. Meanwhile the work of reproducing their earlier drawings has gone forward in this country; many of the plates are already printed off, and are of exquisite quality.

In addition to the two lectures already recorded others have now been delivered. On January 21st Miss Murray lectured on "Primitive Religion in Ancient Egypt" with many interesting slides; on February 18th Mr. G. A. Wainwright lectured on "Egypt: Ancient and Modern," pointing out the continuity of customs and beliefs, and the similarity of the life of the native of the twentieth century to that of Old Testament times. Mr. Wainwright encouraged the audience to ask questions at the close of the lecture and a keen discussion took place. On March 18th Mr. Charles Jarrett-Bell, R.C.N.C. (retired), gave a discourse on "The Ships of Ancient Egypt, with special reference to the Obelisk Barge of Queen Hatshepsut"; a short discussion followed.

Dr. Hall's unexpected death has taken from us one of the Society's oldest and staunchest friends and supporters. We say no more of our loss here, for we publish in this number an obituary notice which Mr. Hugh Last, of St. John's College, Oxford, one of Hall's most intimate friends, has been good enough to write for us, with the help of others who knew him.

On the 23rd of December last died Wilhelm Spiegelberg, Professor of Egyptology in the University of Munich. Dr. Spiegelberg died almost suddenly, at a time when his age and the activity of his mind seemed to indicate that he might still have before him fifteen years or more of precious work for Egyptology. Every branch of the science—Demotic, perhaps, more than any other—is under obligations to him for contributions of solid, scholarly work. His was a keen, alert mind, and though he always had some *magnum opus* in hand he was never too much preoccupied by it to make and publish valuable observations on other branches of the subject. To the gifts of the scholar he added a courtesy of manner which won for him the sympathy of all who met him. The loss to Egyptology is irreparable.

Death and lapse of time have brought about changes in the personnel of the British Museum. On the last day of 1930 Sir Frederick Kenyon, G.B.E., K.C.B., retired from the Directorship which he has held since 1909. He is succeeded by Dr. G. F. Hill, C.B., F.B.A. We wish Sir Frederick full enjoyment of the activities with which his energetic and untired mind will doubtless fill the years of retirement.

The Keepership of the Department of Egyptian and Assyrian Antiquities, left vacant by Dr. Hall's death, has been given to Mr. Sidney Smith. This appointment was made in December, and Mr. Smith returned to duty in the Museum in January from Baghdad, where he had been acting as Curator of the new museum, his services having been lent by the British Government to the Government of Iraq for this purpose.

The Trustees of the British Museum have just issued a new edition, revised and enlarged, of the *General Introductory Guide to the Egyptian Collections*. Dr. Hall, whose signature appears under the preface, tells us that it is a re-issue of the *Guide* prepared by Sir Ernest Budge and issued in 1909, with such additions and corrections as have become necessary in the light of the discoveries of the last twenty years. Some sections have been completely re-written, and an index has been added. The *Guide*, which consists of 460 pages with 233 illustrations, and costs half-a-crown, is a wonderful compendium of information about the history, archaeology, religion and thought of the Ancient Egyptians.

An institution bearing the name *La Société royale égyptienne de papyrologie* was founded by royal decree on the 7th of May, 1930, under the patronage of His Majesty King Fouad the First. Its first president is M. Pierre Jouguet, Director of the *Institut français d'archéologie orientale* in Cairo. Its purpose is to encourage the discovery, study and publication of papyri—Greek, Latin, Coptic Demotic and Arab. It will publish two series of works, bearing the titles *Textes et documents* and *Études de papyrologie* respectively.

We have received the following from Mr. G. D. Hornblower:

"Dr. Siegfried Schott has published in *Journal*, xvi, 23 and Pl. x, 4, a figure of a mother and child inscribed 'May a birth be given unto thy daughter *Seh*,' interpreting it as a concubine and supporting this view by an argument of considerable ingenuity but highly involved. Surely the inscription is simple and natural if the figure be accepted as connected with fertility, and not as a concubine, in accordance with the theory stated by me in *Journal*, xv, 29 ff. The figure may, in fact, be well taken as greatly fortifying that theory.

"Will you allow me to add a slight correction for the last line of p. 13 in *Journal*, xvi, where '1929, part iv' should be '1930, part i'; the article in question was transferred to the later number of *Ancient Egypt* after the final proof of the article in the *Journal* had been despatched."

Writers for the *Journal* are begged, when giving the measurements or weights of objects, to state them in the metric system, out of consideration for our very numerous Continental readers, to whom an ounce, an inch and a pint mean nothing, and who cannot be expected to have constantly by them the necessary Table of Conversions. Those writers who wish can always add the English equivalent in brackets—a practice of which Dr. Hall set a good example.

In the interests of economy authors are asked to reduce their use of hieroglyphic signs to a minimum. Though it is impossible to lay down any principles in this matter, it is clear that in many cases a consonantal transliteration of an Egyptian phrase, even though the vowels are unknown to us, is, when accompanied by translation, clear and unambiguous, and therefore sufficient. Thus, for example, when we wish to illustrate the use of a particular verbal form it is often possible to confine the use of hieroglyphs to the clause or even word in which the form occurs, the necessary context being given in transliteration, and the whole accompanied by translation. Clarity, however, must come before economy, and the Editor would be the last to suggest that any risk of obscurity should be taken in order to save a few shillings. At the same time, he does remark that in several recent cases where he has suggested a reduction in the number of hieroglyphs used the writers have agreed that their articles suffered no loss whatsoever from the change.

NOTICES OF RECENT PUBLICATIONS

Von ägyptischer Kunst: Eine Grundlage. VON HEINRICH SCHÄFER. Third edition. Leipzig, 1930.

Die Leistung der ägyptischen Kunst (Der alte Orient, Band 28, Heft 1/2). VON HEINRICH SCHÄFER. Leipzig, 1929.

Ägyptische und heutige Kunst und Weltgebäude der alten Ägypter: Zwei Aufsätze. VON HEINRICH SCHÄFER. Berlin and Leipzig, 1928.

For forty years Professor Schäfer has been occupying himself with Egyptian art in the widest sense and putting out a steady stream of valuable works on this subject. It would not be too much to say that his researches have put the study on a new plane. And yet, if we may judge by some recent works on Egyptian art, his work appears to be almost entirely unknown in this country. This is perhaps not difficult to account for. The general public, in so far as it is interested in Egyptian art at all, is interested in it mainly because its products are surrounded by the romance which attaches to everything which is several thousand years old and has been dug up out of the earth. Writers on the subject have consequently only too often contented themselves with illustrating and describing a number of representative examples of Egyptian painting, sculpture and architecture, and noting the characteristics of the various periods; they have made little or no attempt to compare this art with that of other regions and times, to explain why it is as it is and not otherwise, or what the artist was trying to do and how far he achieved it. They fail to do these things partly because the public is not curious about them, partly because of that intellectual sloth from which not one of us can boast himself free. To describe a few hundred objects is so easy; to discuss the why and the wherefore of a work of art is so difficult; it needs profound thought, wide reading and patient study of art in all its forms. And this is why Schäfer's work is not read. Not that it is difficult—let him who finds it so try a few pages of Wilhelm Worringer's *Ägyptische Kunst*¹, and he will then have reason to thank Schäfer for the comparative simplicity of his style. At the same time his is the kind of work which cannot be read with profit except by a mind that is prepared not merely to absorb but to keep itself in a constant state of alert reaction. His propositions are not to be inertly accepted, they are to be weighed and inwardly discussed in the light of our own artistic experience. His work cannot be assimilated by mere reading and memory but only by thought. Yet it is well worth it, for he who has not made himself acquainted with at least its general lines is still groping about in the dark in the realm of Egyptian art; he may admire it or despise it, but he cannot really understand it.

The three books whose titles stand at the head of this review constitute Schäfer's most recent contributions to his subject. The first is a new edition of a book which we suspect has been more often praised than read. Its first edition was reviewed in this *Journal* (VII, 222 ff.) by Mr. de Garis Davies, and no more need be said about it here.

Die Leistung der ägyptischen Kunst is quite a short work, but it is important in that it sums up Schäfer's attitude towards the art of Egypt. He begins by pointing out that Egyptian art is of the more tranquil type which is born of no fierce internal battles but occupies itself rather with the restful, orderly

¹ In 1927 Professor Wilhelm Worringer published in Munich a book called *Ägyptische Kunst: Probleme ihrer Wertung*. Its main function, as he himself tells us, is to "tear off from Egypt the mask given to it by the romanticizing tendency of Europe" and "behind the romantic mask to point out America, the unromantic." That this process of tearing off the mask is both abstract and complex will be evident from the following quotation, chosen quite at random, from the courageous English version by Bernard Rackham (*Egyptian Art*, London, 1928, p. 76, = p. 92 of the German edition). The subject under discussion is the ground-plan of the Egyptian temple. "But are we not here once again in the presence of that eternal Egyptian polarity with which we have already become acquainted in many forms, that immediate juxtaposition of the prehistoric basic substance of conceptions and their surface worked over with a rationality having the force and rigidity of a formula, speaking an entirely different accent?" Schäfer reviewed Worringer's work in *Deutsche Literaturzeitung*, Heft 15 (1929), 707 ff.; this review is in itself a work of the first importance for the study of Egyptian art.

representation of its world of forms. This gives it a certain impersonality, and causes it to move slowly, without violent dislocations, though it never reaches stagnation. Schäfer next explains that what he proposes to investigate is not the value of Egyptian art, *i.e.*, what it may mean for a particular person, though this is in itself a fair subject of enquiry, but simply its achievement in the objective sense.

He begins with a short but excellent sketch of the history of architecture in Egypt, emphasizing the importance of the invention of mud bricks as leading by their very form to rectangular design. He passes on to the discovery of stone as a building material, and its consequences. Here stress is laid on the surprises which the recently discovered buildings of Zoser presented to us; instead of the primitive heavy architecture which we might reasonably have expected to precede the massive work of the Fourth Dynasty we find a light and delicate style of whose existence no one had a suspicion. This survey is continued down to the New Kingdom, and contains many good things, more especially an interesting treatment of the origin and development of the free-standing column.

Schäfer is an opponent of the school of thought which refuses all symbolical significance to Egyptian architecture and regards its forms as the mere products of necessity and utility¹. For him the position of the royal pyramids on the plateau and that of the tombs of the nobles high up in the face of the cliffs symbolize the desire of their owners to be raised, even in death, high above the heads of their subjects. So too he detects symbolism in the manner in which, in the sun-temples of the Fifth Dynasty, the path used by the priests led by a roundabout way through the complete darkness of the interior of the great obelisk to open out suddenly on the east side into the full glory of the rising sun. "There can be no doubt," he says, "that the effect which we of to-day feel here, the symbolism which we can see in the whole structure, was fully intended by the architects" (p. 25). He sees a like symbolism in the innovation made in the New Kingdom temples by which, through the device of increasing the height of the two central rows of columns and the portion of roof which they supported, a brighter light is thrown upon the central aisle and the procession which moved along it. And here Schäfer joins issue with Worringer, for whom this aisle "is no architectonic symbolization of the root idea contained in the ritual, but merely the direct architectonic precipitate (*Niederschlag*) of the external demands of the ritual."

On other points, too, in connexion with the interpretation of Egyptian architecture Schäfer finds himself in strong opposition to Worringer. The latter condemns the cold calculating logic with which the rooms of an Egyptian building seem to him to be packed into a predetermined rectangular frame without respect for organic growth. "What emerges under these conditions," he says, "is no natural tissue of cells but a mere crystallized formation of cells conditioned by their purpose" (W., p. 64). Schäfer finds himself unable to accept this as a fair description of the plan of an Egyptian temple.

Worringer has a further complaint against Egyptian architecture, this time against the elevation of its rooms rather than against their ground-plan. They lack, for him, that space-feeling (*Raumgefühl*) which has its greatest manifestations in the Pantheon, in St. Sophia in Constantinople, in Gothic and in Baroque. Schäfer points out in the first place that this space-feeling must not be confused with spaciousness (*Weiträumigkeit*), and that it is in some way or other bound up with the idea of vaulting; we feel it in the beehive tombs at Mycenae, we miss it in Greek architecture of the classical period. In other words, space-feeling in the sense in which Worringer uses it is a quality of architecture which only exists under certain special conditions, and we have no right to complain of its absence from Egyptian buildings, where these conditions are not present.

In this connexion Schäfer deals with a very striking feature of Egyptian temple architecture, namely the narrowness of such rooms as have no columns and the transformation of the larger roofed halls into veritable forests of columns. He rejects the view that this is to be explained as a conscious negation of space-feeling, a sort of space-shyness (*Raumscheu*), and admits that the cause is purely technical and lies in the difficulty of roofing broad spaces with horizontal blocks. But, he adds, this is not all; what may in origin have been a technical necessity was exploited aesthetically; its artistic possibilities were observed and made the most of. "The idea of the vault," he says, "could not fructify in the purely stone architecture of Egypt, since in temple architecture the sensibility, the 'will to art' of the Egyptians, was satisfied with the possibilities of expression which they had developed out of roofing with blocks, possibilities which led in an entirely different direction from those forms of building which create in us 'space-feeling.' The student of the history of art is bound to take cognizance of a direction followed with such persistence; whether it pleases him is an entirely different matter."

¹ See Worringer's book referred to above.

Schäfer adds at this point a reflection which may well be pondered by all those who work in this field. Just as the forms of drawing, sculpture and architecture in general reflect the life of the Egyptian people, and are intimately bound up with their speech, music, dance, poetry, and, above all, their religion, so must the form of the temple in particular arise in some way or other out of the movements of feeling and the basic thoughts of the cult and out of the innermost form of the religion. But no scholar will dare to demonstrate the nature of the connexion; there is no one who sufficiently understands the inner spirit underlying the outward ceremonies of Egyptian religion to undertake such a task. Here once again Schäfer is breaking a lance with Worringer, whose conclusions with regard to Egyptian art in general are largely based on an examination of Egyptian religion, which, in Schäfer's opinion, no Egyptologist, and still more decidedly no layman, is in a position to undertake (see Schäfer's review of Worringer's book).

In concluding this section of his work Schäfer warns us that there is one quality which we are not to expect in Egyptian architecture, that which he calls the artistically-organic (*das Künstlerisch-organische*). This quality is present when in a building, as in a healthy living body, each separate part is there for the sake of the whole, and the whole for the sake of each separate part, and when, further, each separate part is not merely sufficient for its task in a statical sense, but expresses this task in every line and surface. The working out of form in this sense first appears in Greek art, and is, even there, still in process of development. We must therefore not look to find it in Egypt.

The second portion of the book deals with drawing and sculpture. Here, too, there are many good and original thoughts, but of these less need be said because much of the material is also to be found in the author's *Ägyptische Kunst*. Those who are familiar with this are already acquainted with Schäfer's epoch-making discovery of the principle which distinguishes Egyptian and other early sculpture from Greek and post-Greek, the principle of *Richtungsgeradheit* (quite distinct from Julius Lange's Law of Frontality) by which a statue is built up of four views seen in two pairs of parallel planes which cross at right angles, a principle which Schäfer shows to be intimately connected with the full front-view (*geradansichtig*) principle observed by the same artists in drawing in two dimensions. Quite different from this, though capable, according to Schäfer, of very intimate connexion with it, is a tendency to geometrical stylization first observable in works of the early dynastic period, and typical of Egyptian art throughout the rest of its course, though not always in the same degree. This is a subject on which we could well do with more enlightenment, and we hope that in the near future Schäfer will find time to put down his ideas on this subject at greater length.

One more point in this part of the work needs special emphasis. Schäfer distinguishes in Egyptian and other early works of art two strata (*Schichten*). The first (*erkenntnistheoretisch, naturforschend*) is the underlying basis of the work of art and consists of the form under which the object is presented by the artist. In the case of Egyptian and other early sculpture this form is the *richtungsgerade* and consists, as has been explained above, of a combination of four views set in two pairs of parallel planes which cross at right angles. This is overlaid by the second stratum, which is the artistic expression (*Ausdruck*). The first element is generally fixed by the conditions of the period in which the artist works, and has in itself no aesthetic value; the second, the expressional content which the artist imparts to his figure, is free and is conditioned only by his own inclination and skill. And this is precisely the reason why, despite its defect of form, an Egyptian statue of the Old Kingdom may stand, artistically, comparison with a Greek statue.

The third book named at the head of this review contains two essays, of which the second, *Weltgebäude der alten Ägypter*, an interesting treatise on Egyptian methods of representing the structure of the earth and its relation to sky and underworld, claims only passing attention in the present context. The other essay, entitled *Ägyptische und heutige Kunst*, is a fascinating comparison between Egyptian and modern art. The main conclusions are as follows:

With Impressionism Egyptian art can have no point of contact, for the whole aim of the latter is to reproduce the impression made by the object at a particular moment on the eye of the artist, while the Egyptian does not reproduce a single impression made on his eye but combines a series of views of the object from different points.

Between Egyptian art and the various forms of Expressionism there are apparent points of contact in so far as both allow themselves considerable licence in distributing and arranging the purely material content of the object. It is true that in the case of the Egyptian this licence is unconscious, while in the Expressionist it is conscious and studied. But the real difference lies deeper than this. We spoke above of the distinction drawn by Schäfer between two strata in art, first the form under which an object is portrayed, and secondly the artistic expression which is given to it. If we take the points of resemblance between

Egyptian art and Expressionism included under the term "licence" above, namely *Richtungsgeradheit* in dealing with three-dimensional objects, and, in two-dimensional work, lack of depth and the spreading out of the planes on the painting-surface, we observe at once that in Egyptian art these are manifestations in the first stratum, while in Expressionism they belong to the second stratum, that of artistic expression. The resemblances are thus apparent only.

With one particular type of Expressionism, namely Cubism, Egyptian art has a more real similarity in its liking for geometrical forms. There is considerable quantitative difference, but there is this in common that the basis of comparison belongs in both cases to the same stratum, that of artistic expression.

The characterizations of the art of the different pre-Greek civilizations and of that of the various periods in Egypt on pp. 51 and 53 respectively may be recommended for their pithiness.

On p. 54 is a short passage about the art of Tell el-Amarnah which writers on the art of that period might ponder. I quote it in full: "In this art it was not a mere matter of a movement in the direction of truth to nature; the artist was indeed master of this, as always in Egypt. What is new in the art of Amarnah is something different from this: the artist was striving after new forms of expression and did not shrink, as for example in the figure of the king (Fig. 65¹), even from what was in the ordinary sense ugly, provided that the 'line' was expressive. These monuments from the first enthusiasm of the revolution, which later assumed a gentler mood, are probably the first Egyptian works of art which compel the connoisseur to use the word 'expressionism'.²"

Some excuse is needed for a review of this length, more particularly since it is of the type which aims merely at setting forth the views of the author rather than appreciating or criticizing them. Let the excuse be that it seemed necessary to try to arouse some interest in English readers for the work of a great scholar which has been singularly neglected in this country, work so important that he who has no knowledge of it has neither the right to criticize nor even the ability fully to appreciate an Egyptian work of art.

T. ERIC PEET.

The Papyrus Ebers. Translated from the German Version by CYRIL P. BRYAN. With an Introduction by Professor G. ELLIOT SMITH. London, 1930.

That a Bachelor of Medicine should think it worth while to publish in English a translation of the Ebers Papyrus based on the German version made by Joachim in 1890 is a fact which should give Egyptologists pause. It is more than half a century since Ebers gave to the world a facsimile of his find. In that time our knowledge of the Egyptian language has increased a hundredfold; fresh medical papyri have come to light, and research on the philological side by Wreszinski and Reisner and on the medical side by such men as Dr. Elliot Smith (who writes a preface to this volume), Sir Armand Ruffer, Dr. Derry, Dr. Ebbell and Mr. Warren Dawson has put the study of Egyptian medicine on a higher plane. And yet there is still no modern translation of the Ebers Papyrus either in English, French or German. Mr. Bryan speaks in his preface of the difficulty of finding an Egyptologist capable of carrying out the task. That this is not impossible, however, is clear from Breasted's recently published work on the Edwin Smith Surgical Papyrus. If Breasted, most of whose time is devoted to the organization of his science, can do this, then there is no reason why the Ebers Papyrus should not be dealt with. It should be done by a philologist and a doctor of medicine in collaboration, and, for the latter, who could be better than Elliot Smith? But where is the philologist who has not already undertaken more work than he can possibly accomplish?

The moral is this. Every year thousands of pounds are spent—and rightly spent—on digging up things which are interesting and valuable in themselves, but which in some cases could safely wait underground another hundred years. Meanwhile masses of first-hand information remain locked up in papyri and ostraca; these are accumulating more rapidly than they are being published, and the reason is that so little encouragement is given to young students to devote themselves to the philological side of Egyptology. There can be no improvement in this until the University teacher is able to say to intending students not merely, as at present, "If you are lucky you may get an appointment with an excavating party," but also "If you prove a really good scholar in the Egyptian language there will always be a career for you." This, and this alone, will attract into Egyptology the types of mind which we so much need. We have at length, during the last few years, realized the necessity of copying the scenes and inscriptions on the temples and

¹ The figure referred to is that on the boundary stones at El-Amarnah, e.g., Davies, *El Amarna*, v, Pls. xxxix-xli.

² Such examples are, as Schäfer points out, quite exceptional in Egyptian art.

tombs of Egypt before time destroys them. When will we realize that we have also a duty by the papyri and ostraca? How much nonsense is written even in the best of books which could have been avoided had the authors had access, even in translation, to the papyri; and how often would an untenable hypothesis have been checked at the outset if its author had had by him a correct instead of an incorrect rendering of some passage or other! What hours are thus wasted, and what a morass of inaccuracy the Egyptological literature of to-day will be for the student of a century hence! How rightly he will curse our stupidity!

The Egyptian has committed much of his life story to papyrus, and many pages of the book have survived. We, in our folly, too often bury them in a museum and prefer to write the story from pots and stones, aided by our own imagination. Archaeology and philology should be yoke-fellows, but the latter is so ill nourished that many find the chariot goes more merrily with one horse.

T. ERIC PEET.

Amun und die Acht Urgötter von Hermopolis, eine Untersuchung über Ursprung und Wesen des ägyptischen Götterkönigs. Von KURT SETHE. (*Abhandlungen der preuss. Akad. d. Wiss.*, 1929, Phil.-hist. Klasse, Nr. 4.) Berlin, 1929.

In this essay Professor Sethe publishes a great collection of interesting material concerning Amūn of Thebes and especially his connexion with the Ogdoad of Hermopolis. For the collection and publication of these passages the student will always be grateful. The book is a mine of information on the subject not only of Amūn himself, but of other less important deities. But, in spite of his vast knowledge of Egyptian religious texts, the results are not so happy when this master of Egyptian grammar leaves the realm that he has made his own for that of history and comparative religion.

In the first place the method of approach is open to question. Instead of beginning at the beginning and working forward Sethe prefers to start at the end and work backward. In fact the greater number of his texts are late in date, and nearly all are of the very latest—Roman and Ptolemaic with a few Saitic. The pantheistic hymn at Khargah on which he greatly relies is of Persian date, while the earliest compositions giving this kind of information about Amūn only come down to us from the Twentieth Dynasty or late Nineteenth. The late religious texts are notoriously products of the philosophical speculations of priests syncretizing beliefs which were often really irreconcilable. Yet from an elaborate study of these intricacies and of the possible intentions of the various scribes who wrote them, Sethe draws certain conclusions. These he projects back into the past, hoping to deduce from the final complications the original simplicity. He is, however, only able to support his conclusions in the earlier period by evidence which seems tenuous. Thus, believing that Amūn was carried away from Hermopolis, he calls in the rare divine name *Tnmw* to prove his case. He brings forward three points in regard to this; first, that the name *Tnmw* means "to go away, to disappear"; secondly, that one of the inscriptions in which it occurs comes from the Hermopolite district; and thirdly, that this inscription happens to date from about the time of our first record of Amūn's presence in Thebes. But of themselves these three facts in no way prove either that the name *Tnmw* was a *sobriquet* for Amūn, or that it was devised for him by the Hermopolitans because they had lost him.

Again, in his appeal to the Pyramid Texts for a connexion between Amūn and Hermopolis Sethe fails to convince. It is true that on one occasion Amūn and Amaunet are mentioned in the same passage as *Nyww* (Nun) and Naunet. But then so are Atum and *Rererty* of Heliopolis. This passage, therefore, would provide as much evidence for Atum's origin from Hermopolis as it does for Amūn's.

In the lists of the Hermopolite Ogdoad which Sethe publishes on Taf. i, it is suggestive, to say the least of it, that eighteen out of his thirty-five, rather more than fifty per cent., do not mention Amūn and Amaunet at all. It is surely significant that these eighteen include all his examples drawn from the Old Kingdom, the Herakleopolitan period, the Middle Kingdom and the New Kingdom. The absence persists in many of the lists even of Ptolemaic and Roman times. Furthermore, the Pyramid Text which heads his collection is not a list at all, but only a passage in which the Theban pair and one member of the Hermopolite are mentioned together. Moreover, Atum and *Rererty* also come into that passage and should, therefore, be allowed for in one of the columns of this plate, which they are not. These lists, then, provide little evidence that Amūn had been brought from Hermopolis to Thebes.

As a matter of fact the lists and statements seem to bear in themselves the evidence that Amūn was a stranger to the Ogdoad and was thrust in among this group of gods perforce. His position there is quite unsettled. Sometimes it is Nun whom he replaces; more often it is *Nyww*; very often he is not there at all. Sometimes he is said to be the Father of the Fathers of the Ogdoad; and sometimes the whole Ogdoad

seems to be conceived as merely a form of Amūn. Indeed, so evident is Amūn's intrusion that sometimes, when he and Amaunet are there, they are not even inserted but merely added, making the original *Ogdoad* into a *Decad*! The question raised by these facts does not seem to be "How did Amūn come to Thebes from Hermopolis?" but "Why did the Theban priesthood want to connect Amūn with the Hermopolite Ogdoad?"—a very different thing. The movement to do so seems to have been started in the late New Kingdom and to have become greatly intensified in the last phases of Egyptian history.

Sethe sees some of the resemblances between Amūn and Yahweh, and goes so far as to suggest that the latter originated not only in Egypt but from Amūn himself, as a result of the Sojourn. But the God of Abraham, the God of Isaac and the God of Jacob was far older than that, and had already manifested his nature long before the Israelites went down into Egypt. But still it is not impossible—is in fact probable—that Egypt had some influence on various details of the Hebrews' conception of their god. As a matter of fact there are other Egyptian gods who are as much, or more, like Yahweh than is Amūn. The probability is that they, and Amūn, and Yahweh himself, as well as many other gods of the Near East, were all local developments of the one primitive conception of the air-, storm-, or sky-god.

Finally, there are some general considerations which make it improbable that Amūn should have come to Thebes from Hermopolis. Amūn first appears at Thebes in the Eleventh Dynasty—a time at which we know of no Hermopolite influence there. The Theban kings were pushing forward their northern boundary, it is true, but to bring home a captured god and magnify him at the expense of the native god who has given the victory would surely be unprecedented, not to say ungracious. Further still, if a god were to be selected from the eight Hermopolite deities, why should the choice have fallen on Amūn and not on Nun the chief of them all? Besides, if Amūn were native to Hermopolis, why should Akhenaten have fled to that very district in his attempt to escape from Amūn? Finally, we know that whatever Amūn may or may not have been he was essentially Min, and the earliest representation that we have of the Theban god (Chevrier, *Ann. Serv.*, xxviii, Pl. i, to p. 127) shows both of his forms, and so proves the Min figure to have been Amūn's at least as early as the striding one. But this monument takes us farther, for it is surely very significant that the picture which bears the simple name Amūn has the form of the ancient god Min, whereas the new and compound name Amen-rē is given to the new striding form. Min was not a god of Hermopolis but of Akhmim and Koptos. His introduction at Thebes as Amūn merely extended his boundary along the eastern bank by including the next nome to the south.

G. A. WAINWRIGHT.

Der Eid im ptolemäischen Recht: Inaugural-Dissertation von ERWIN SEIDL. München: Akad. Buchdruckerei F. Straub, 1929. Pp. viii+116.

The oath played in the law of Graeco-Roman as of dynastic Egypt an important and characteristic part, and the present monograph, which is the most thorough and systematic treatment of a subject necessarily touched on to some extent by many writers and editors, is a useful addition to papyrological literature. Oaths were of various kinds and can be divided into classes by various criteria: oral and written oaths, assertory and promissory oaths, the royal oath (by the king, whether alone or accompanied by other gods), and the temple oath (by a god or several gods). Seidl distinguishes these various classes and their subdivisions, the formulae used, the purposes for which oaths were taken, the law affecting oaths, and the sanctions which safeguarded them. The classification by the various criteria is perhaps in places not as clear as it might be, at least to a non-jurist, but the collection of material is very comprehensive, and there are many acute observations. The author points out for example (p. 20) that the *ἑρκος νόμος* of P. Hal. 1 is to be described not as *Eidesformel* but as "die gesetzlich vorgeschriebene 'Form' der Eidesleistung, zu der die Formel nur als ein Bestandteil gehört"; that (p. 42) royal oaths, when they form an independent document, are to be regarded as the attestation of an oral oath (*Eidesbeurkundung*), when they form merely part of a document, as a true "written oath" (*Schrifteid*); that (p. 56 f.) the supposed evidence for the existence of compurgators in Wilcken, *Ostr.* 1150, is illusory; and that (pp. 74-81) the *Eidesprogramm*, i.e., the written oath prepared for later use as the basis of an oral oath, was always designed for the protection of a private interest, while (p. 90) the oath in the public interest was normally, though not quite without exception, a *χειρογραφία*.

The besetting temptation of doctoral theses is to an unnecessary particularity of detail, and the present one is not wholly free from this; for example, in the analysis of the component parts of a royal oath on p. 12 it is superfluous to specify the various types of dating clause, since such variations were common to all contracts and had no special relevance to the royal oath. Sometimes, too, Seidl is needlessly critical of

his evidence. Thus, on p. 92 f. he objects, *à propos* of P.S.I. 515, where Goirenis swears to Zeno's agent Thotaus *πρήσσειν ἡμέρας λ' ἀλωμένα (sic) ἐν Φιλαδελφείᾳ... ὑπὲρ Σεμβοῦς Τεῶτος ἔξω ἱεροῦ βαμποῦ σκέπης πασης*, that while it is conceivable "dass sich die Verwaltung auch von dem, der einen Drescher beschaffen soll, einen Eid geben lässt," yet it is improbably severe to deny the poor labourer an asylum; and he therefore suggests that we should read, instead of *ἀλωμένα*, some form of *ἀλίσκομαι*. But, apart from the fact that the reading can hardly be doubted (see now the facsimile of this document in M. Norsa's *Papiri greci delle collezioni italiane*, fasc. 1, Pl. vc), this oath was not taken to the government but to an agent of Zeno, either on his own account or as head of Apollonius's *δωρεά*; and it is likely enough that, after various experiences of strikes and flights to temples on the part of labourers, Zeno should resolve to secure himself against default by the clause in question.

These are, however, very small points and do not seriously detract from the value of a very thorough and critical piece of work.

H. I. BELL.

The Vocabulary of the Greek Testament: Illustrated from the Papyri and other Non-Literary Sources. By JAMES HOPE MOULTON, D.D., D.Theol., and GEORGE MILLIGAN, D.D. London: Hodder and Stoughton. 1930. £5. 5s. net.

By the publication of Part VIII this great undertaking, begun in 1914 by Dr. Moulton and Dr. Milligan jointly but since the former's tragic death during the war carried on by the latter alone, is brought to a successful conclusion. The successive Parts have been noticed from time to time in the Bibliography of Graeco-Roman Egypt, and Part VI was reviewed by the present writer in *Journal*, XIII, 271-2. There is consequently little more to say concerning the complete work, which is doubtless familiar to all interested in the subject. As is well known, it was undertaken from the standpoint, specially associated with the name of Professor Deissmann (though, as Dr. Milligan points out in the General Introduction, one or two earlier scholars had approximated to it), that the Greek of the New Testament is not a special and peculiar language, to be denoted as "Biblical Greek," but simply (though with certain peculiarities due to the nature of the texts themselves) the ordinary *koiné* of the day, the Greek spoken and written in their private correspondence by the average men and women of the Greek East. In the enthusiasm of a new discovery men are apt to overstress the point of view which they are advocating, and Deissmann has not wholly escaped this danger; but there can be no doubt that the truth lies far nearer to his view than to the opposite one, and on the whole Moulton and Milligan have been more moderate than he in their statement of the position.

Naturally, in view of what has been said, the special aim of the present work is to illustrate the use in common parlance, which is practically equivalent to saying in papyri, ostraca and inscriptions, of the words found in the vocabulary of the New Testament. It thus serves a double purpose: the theologian will find in it a valuable aid to the understanding of the text and to the elucidation of finer shades of meaning, but to the papyrologist also it is a very useful collection of material for any word in his documents which happens to occur in the New Testament. Its value in the latter respect is not indeed so great as before the appearance of Preisigke's *Wörterbuch*, which is a complete vocabulary of the papyri; but since its smaller range allows of ampler commentary and more extensive illustration, its examples being drawn moreover not only from Egypt but from inscriptions in other localities, the *Vocabulary* retains its utility even for the papyrological specialist.

There are of course openings for criticism, faults here and there of arrangement, occasional misconceptions in the interpretation of particular passages, but no work of the kind could possibly be free from these. Some general criticisms might also perhaps be brought against the method of treatment. There is a tendency to extend the range more widely than the purpose of the work demands; on the one hand, to illustrate with unnecessary fullness words or usages which are quite familiar and have no nuance peculiar to the New Testament and the current *koiné*; on the other, to stray outside the sphere of New Testament usage and cite examples which are really irrelevant. The papyrologist will raise no objection here, but the theologian may feel tempted at times to exclaim "Des Guten zu viel!" Had some of the space devoted to these excrescences been spared for the purpose of distinguishing more nicely the nature of some of the texts quoted, whether private or official letters or legal documents, and whether by educated or illiterate writers, it would have added to the usefulness of the work. These criticisms are however of comparatively small moment; it is more important to call attention to the completion of Dr. Milligan's task and to congratulate him on having brought his long and self-sacrificing labours to a successful conclusion.

H. I. BELL.

Mathematischer Papyrus des Staatlichen Museums der Schönen Künste in Moskau. Von W. W. STRUVE. (Quellen u. Studien zur Geschichte der Mathematik; Abtheilung A: Quellen, Band 1.) Berlin, 1930.

The appearance of Struve's long awaited publication of the Moscow Mathematical Papyrus marks a new epoch in the study of Egyptian mathematics. He has performed his task with conscientious thoroughness and has every reason to be proud of the result. The difficulties of the papyrus are at times appalling. Middle Kingdom hieratic of a cursive type is never easy, and in the whole range of the literature of this period I know of no case where a scribe has been so criminally inconsequent in the forms of his signs. What is more, he was in some problems dealing either with a faulty original or with an original which he did not understand. The result is in some cases chaos, but chaos into which an editor naturally feels it his duty to introduce some sort of order, though well aware that in so doing he lays himself very freely open to criticism.

In the remarks which follow I venture to disagree with Struve upon many points, but I do so not unmindful of the fact that it is very easy to criticize a first edition of a text, but very difficult to produce one. Egyptologists and mathematicians alike have every reason to be grateful to Struve for devoting several years of his life to the publication of this papyrus. The reference on the title page to Turaief is a fitting tribute to its first student, whose tragic death was a grave blow to Egyptological scholarship. No one who has himself autographed hieroglyphs will refuse his tribute of admiration to the superb handwritten transcription in the plates, which is the work of Perepelkin.

While not wishing to depreciate the value of the Moscow Papyrus I still believe that I was justified when in 1923, after working through it from photographs, I stated that it contained nothing, apart from the problem on the truncated pyramid, which would greatly modify our conception of Egyptian mathematics. If I could believe with Struve that No. 10 involved an approximate determination of the curved area of a hemisphere this judgement would have to be revised. But I do not (see pp. 100 ff. of this *Journal*). While, however, the papyrus contains nothing that is startlingly new its problems are full of interest, and there is much to be learned from them as to the workings of the Egyptian mind.

As I have a great deal to say about the problems themselves I make no comment on S.'s introductory matter except to remark that it is very complete and very valuable, and I pass on at once to the detailed consideration of the problems.

P. 42, no. 2. The reading $\frac{1}{2}$ in ii, 3 can hardly be right. The first sign is surely $\frac{1}{2}$, and, though the second with its small head, and its lower stroke almost at the level of the top of the $\frac{1}{2}$, is not a convincing $\frac{1}{2}$, I am inclined to think that is what it is. For the form of the $\frac{1}{2}$ and the height of the $\frac{1}{2}$ cf. the writing of the interjection $\frac{1}{2}(w)$ in iv, 3, which also shows that the usual writing with $\frac{1}{2}$ (e.g., xxx, 4 and xxxiv, 3) is not universal in the papyrus.

P. 43, no. 3. The interpretation and restoration given are unsatisfactory because $\frac{1}{2}$ cannot mean "a mast (made) out of a cedar" but only a "cedar mast," and because line 3 as restored could not possibly convey the meaning required of it, namely that the mast should be $\frac{1}{2} + \frac{1}{2}$ of the height of the cedar. The readings here given are not all correct. In the first place S. has failed to notice that the small square projection of papyrus at the bottom of the left-hand piece (Fragment 2) has been wrongly mounted. It should be swung round through a right angle to the left on its left-hand top corner. It then completes the $\frac{1}{2}$ of $\frac{1}{2}$ in l. 3 and the word $\frac{1}{2}$ (apparently so) in line 4. The signs under the $\frac{1}{2}$ are, in the tattered state of the papyrus, not certain; $\frac{1}{2}$ is impossible. In l. 3 after the traces of $\frac{1}{2}$ S. reads (p. 43, fig. 2) the fraction $\frac{1}{2}$. No fraction stood here; what remains might be a trace of $\frac{1}{2}$, and there may be room for a horizontal sign below it. The sign which precedes $\frac{1}{2}$ in l. 3 might, as S. thinks, be $\frac{1}{2}$ (is not possible), but in this case what is the dot to the left of its top, and why a stroke after it? The sign transcribed $\frac{1}{2}$ by S. disappears when the loose fragment is correctly placed.

I have no constructive criticism to make on this problem. It is possible that it dealt with the volume of a mast 30 cubits long and so many handbreadths in diameter of section. Cf. No. 11.

P. 50. S. transcribes by $\frac{1}{2}$ written over and attached to $\frac{1}{2}$ the group for Upper Egyptian corn, which consists of the normal hieratic sign for $\frac{1}{2}$, with a small addition in front under the cross-stroke. The same sign is used in the Kahun Papyri, where Griffith transcribed it as S. does here. This transcription seems unlikely partly because the addition stands before, not below or after the $\frac{1}{2}$, and partly because hieratic does not favour combinations of this kind, which are essentially hieroglyphic, and generally arise

from writing in vertical columns. What is more, in the Butler Papyrus of the Eloquent Peasant, l. 31, and in Pap. Kahun, xx, 7, the sign we are discussing is determined by $\overset{\circ}{\text{C}}$ (or $\overset{\circ}{\text{C}}$), which would be unnecessary if the determinative C already stood there. Is it not possible that the small sign under the stroke is to be read im , the original name of the corn being im ? The subordinate position assumed by the sign for the grains of barley may have been due to the influence of sportive writings in which they were arranged as if dropping from the branches of the C (see *Journal*, xvi, 195, ll. 4 and 6, and note 12 thereto). The grains seem to have become part of the normal Late Egyptian hieratic form of C in all its uses (see the note quoted just above).

P. 51. S. transcribes the sign for the *hekat*-measure by C over C and attached to it. Surely this cannot be right. The upper sign is not C , nor yet C (the club or throw-stick), but quite clearly C , the finger. This is still clear in the writing C , side by side with C , in the tomb of Puimre¹ (Eighteenth Dynasty). In M.K. hieratic C is never used as an abbreviation for the *hekat*-measure, but only in the word *hekat* written out in full with its phonetic complements, C C (Rhind, 44²; cf. an early hieroglyphic example, Siut, Tomb I, 279). The distinction between the two signs is quite clear in such writings as C C (double *hekat*, Rhind, 82. 11) and C C (quadruple *hekat*, Rhind, 47. 3). I do not know the origin of the diacritical tick³ which the sign sometimes shows in Rhind, e.g., 43. 4 and 47. 3.

In this papyrus the full writing C C never occurs. In some cases (xii, 1) we have the normal C C of Kahun and Rhind, followed of course by the numeral in the special *hekat*-notation. In xliii, 1 and 2 occurs a form C , and the same form, even more cursively written, is found in xl, 1. The second group is certain, though the plural strokes ought not to be present. The horizontal line under the C , elsewhere used for the plural strokes in ligature, seems a drastic shortening of C ; yet in xxx, 1, where the second group is omitted, and we are left with C , it seems necessary to read the horizontal stroke as C , since this sign is never omitted in writing the *hekat*-measure, though the preceding C may be (e.g., Kahun, xviii, 26 ff.).

P. 59. S.'s treatment of the *pfsw* problems (pp. 44 ff.) is very complete. In this connexion he has to deal with two difficult phrases, the first of which is $\frac{1}{2} \frac{1}{2} n \text{ b} \text{ s} \text{ n} \text{ b} \text{ n} \text{ r}$ or $\frac{1}{2} \frac{1}{2} n \text{ b} \text{ s} \text{ n} \text{ b} \text{ n} \text{ r}$ (pp. 59 ff.). When this appears as part of the data in a problem concerning the *pfsw* of beer its effect is to halve the number of *ds*-jugs of beer of a given *pfsw* which can be obtained from a fixed quantity of Upper Egyptian corn, from which alone the beer mentioned in this papyrus is made. This is made quite explicit in the text of No. 22, where we read "Now, $\frac{1}{2} \frac{1}{2}$ (i.e., $\frac{3}{4}$) $n \text{ b} \text{ s} \text{ n} \text{ b} \text{ n} \text{ r}$ is equivalent to 2." Now S. is anxious to affix units to these numbers $\frac{3}{4}$ and 2; he rightly rejects the *hekat*, which would need the special Horus-eye fractions and not the ordinary $\frac{1}{2}$ and $\frac{1}{4}$, and decides in favour of *ds*-jugs. He believes that the phrase is to be read " $\frac{3}{4}$ of a jug of spelt-date beer = 2 jugs of Upper-Egyptian-corn beer," and that it indicates that the beer is to be made of the strength of spelt-date beer as determined by this equation. This would give a proportion of $\frac{3}{4} : 2$, not $1 : 2$ as actually employed, and S. therefore endeavours (p. 68), by an ingenious but wholly unconvincing appeal to Rhind 71, to show that the $\frac{3}{4}$ -jug of spelt-date beer in reality stands for a whole jug, giving the required proportion of $1 : 2$. But as a matter of fact there is no reason whatever for supposing that the phrase under discussion contains any kind of direct equation of strength between two kinds of beer. It is merely an instruction that the *im*-beer is to be of double the strength normally indicated by its *pfsw*, i.e., that twice as much grain as usual must be used to make it; and the number $\frac{3}{4}$ has no more direct bearing on the problem than the spelt and dates. In other words, for these problems the phrase $\frac{3}{4} n \text{ b} \text{ s} \text{ n} \text{ b} \text{ n} \text{ r}$ is just an indication label.

At the same time I believe we can determine the original meaning of the words. If we take them in the fuller writing just quoted, with two *n*'s, they are exactly parallel to a phrase in No. 6, $\frac{3}{4} n \text{ s} \text{ w} n \text{ s} \text{ w}$, which admittedly means "(attributing) $\frac{3}{4}$ of the length to the breadth," the first *n* being the genitive exponent and the second the preposition. Similarly $\frac{3}{4} n \text{ b} \text{ s} \text{ n} \text{ b} \text{ n} \text{ r}$ would mean "(attributing) $\frac{3}{4}$ of the spelt to the dates," and would indicate a mixture of 1 part of spelt to $\frac{3}{4}$ of a part of dates. Whether the reference here is to some kind of beer in which spelt and dates were mixed in this proportion we cannot on our

¹ See Gardiner, *Eg. Gramm.*, § 266, 1, and Sign List U. 11, 12.

² Also Pap. Kahun, xix, 4-9, where, for the flattened head of C , cf. Sinuhe B, 70, 86.

³ Such a form as that in Peasant R. 6 suggests, however, that it may have been transferred from the C to the C .

present knowledge determine, nor yet can we guess how this phrase came to be used as an indication of strength in beer made purely of Upper Egyptian corn.

The other puzzling expression used in these *pfsu*-problems is *bšt mi bnr*, literally "spelt like dates" (pp. 90 ff.). S. rightly resists the temptation to translate it "spelt of a date-like nature," i.e., some sweet variety of spelt, and prefers to consider it an abbreviation for something like *bšt, ntt mi bnr*, "spelt and something in the nature of dates." Such a contraction is highly improbable. Can it not mean quite simply "spelt like dates," i.e., spelt and dates alike, or in equal quantities? Just as the phrase $\frac{2}{3} n bšt n bnr$ referred to a mixture of $\frac{2}{3}$ of dates to 1 of spelt, so here we have a mixture of dates and spelt in equal proportions; and just as the one involves doubling the amount of *šm*-corn which goes to produce a *da*-jug of a given *pfsu* so the appearance of the other involves multiplying it by $2\frac{1}{2}$. Here once more it is necessary to urge that this interpretation does not involve the introduction of either spelt or dates into the beer, for the phrase, even if it has its origin in some kind of beer made of spelt and dates, here serves merely as a guide to the strength of a beer made entirely from *šm*-corn.

P. 55, no. 15. Line 2, "nennt." The verb *dd* does not mean to "name" or "mention" but only to "say," and is followed by what is said, in Oratio Recta. This is quite explicit in such an example as Rhind 51: If they say to you, "A triangle of 10 *hekt* in its height and 4 in its base. What is its area?" or again Rhind 30, where we find: If a scribe says to you, "10 has become $\frac{2}{3} + \frac{1}{3}$ of what?" let him hear (in reply).... In many examples, however, the scribe's actual question is, for the sake of brevity, omitted, and only the data remain, still introduced, however, by the verb of saying, *dd*.

Line 3, "unrechnend," and note *b* (p. 56) thereto. S. has here overlooked the fact that the Egyptian participles are always adjectival or nominal in their nature. Thus *ir* here, if an active participle, can only mean "he who reckons" or, with a noun, "(the man) who reckons." To use it like the English or German participle as S. does, "If one names to you 10 gallons, turning (it) into beer," is quite impossible. S. is, however, perhaps right in urging that the absence of an ending -y is against taking *ir* as a passive participle here and—as I did—in the parallel instances in Rhind. I am now inclined to see in this form an Old Perfective (Gardiner, *Eg. Gramm.*, § 317), which would still be best rendered by the passive participle in English and German. S. is incorrect when in note *b* he assumes that I regarded *ir* as an active participle in the passages involving *ir m* quoted in his note 3 (cf. also note 4). It is true that I translated it by an idiomatic English active participle, but I took it to be in Egyptian a passive participle. I now think it is more likely to be an Old Perfective, just as in the cases dealt with above.

In line 4 read — for —.

Line 7, *gm-k nfr*. That this means "You will find it right" and not "You have found it correctly" is evident for three reasons: 1. The sense given is better. 2. If perfect tense had been intended *gm-nk* would probably have been used (for *gm-k* future cf. xvii, 4). 3. In No. 16 the phrase concludes the reckoner's reply to the scribe who sets the problem, and it would there make nonsense if it meant "You have found it correctly."

P. 73, no. 9. There are some points of reading to be noticed. In xii, 1 *hekat* is written without plural strokes, and cannot be translated as plural "von Scheffeln." Since it is usual to insert the number in the first line of these *pfsu* examples, even though it is repeated in the second, it seems likely that the numeral 16 has been omitted after *hekat*. In xii, 6 *bnr* is oddly written. S.'s $\overline{\text{b}}$ is barely possible. Read perhaps for this and the following sign $\overline{\text{b}}$ (sic). In xv, 1, 2, 3 and xvii, 2, 3, however little we may like it, the word *pfsu* is spelt $\overline{\text{p}}$ not $\overline{\text{f}}$ (contrast xl, 3). In xvi, 5 for $\overline{\text{p}}$ read $\overline{\text{f}}$, which has special point in contrasting "those 11 gallons" with "these 16 gallons" of xvii, 1. In xvii, 3 S. reads $\overline{\text{p}}$. The stroke on which he presumably relies for the reading $\overline{\text{p}}$ as against $\overline{\text{f}}$ looks in the photograph like a remnant of the earlier erased text. The perfective relative *di-nk*, too, "which you have attributed," seems out of place, for the attribution is not yet made. Read perhaps the imperfective $\overline{\text{d}}$ in its pregnant sense, "which you are to attribute." Cf. Rhind, 62. 8.

In xiii, 4 S.'s rendering "Say to him, This is 11 gallons of corn, turn them into beer" gives a weak sense, for it is not for the reckoner to order the scribe to do this but to do it himself, as indeed he proceeds to do. The sense we require is "11 gallons of corn is what has been made into beer." And there is no real difficulty in getting this sense out of the words without doing violence to grammar. *hkt 11 ns* is a simple non-verbal sentence meaning "This is 11 *hekat*," and *ir* is the Old Perfective appended to 11 *hkt* exactly as it was appended to 16 *hekat* in xii, 2.

In xvii, 2-3, if we take *int-nf* literally, we must suppose a confusion in the mind of the writer, who

speaks as if the problem had been to find not how many jugs of each strength had been made, but how many someone had brought. For the non-defining (continuative) use of the relative *ddl-k* (translate "and that is what you are to attribute to each strength") compare Rhind, 62. 8.

P. 81, no. 8. It is unfortunate that S., merely because of the absence of the phonetic complement 𓆎 , should have rejected the obviously right reading 𓆎 in favour of 𓆏 , and so reduced to nonsense three perfectly simple problems in exchange based on *pfsc*. It is true that 𓆎 "to exchange" is in good texts accompanied¹ by 𓆏 , but there is nothing to prevent a scribe from writing it without, and so certain is the meaning "exchange" here in view of the parallel with Rhind, 72-78 that we are justified in quoting this very example as proof that 𓆎 in this sense could be written without its 𓆏 . Whatever be the reading the word is a passive participle or Old Perf., not an active participle as S. takes it to be.

In x, 4 and 7 the sign transcribed 𓆏 can surely be nothing but the scribe's pathetic attempt to write 𓆏 , which puzzled him every time it occurred.

P. 82, no. 5. The non-existent form $\text{𓆏} \text{𓆏}$ which S. restores in vi, 4 is surely a slip of his for $\text{𓆏} \text{𓆏}$, though note α (p. 83) raises doubts on the point. In any case note that the form $\text{𓆏} \text{𓆏}$, which is quite clear in the photographs, is unique for this papyrus, unless it be the right reading in iii, 3.

P. 83, no. 16. While I admire the courage of S.'s interpretation of this baffling problem I doubt whether it will find any adherents, for it requires too many suppositions and takes too many liberties with the text. The most serious objection to it is that the last sign but one in xxxii, 2 cannot be the sign for $\frac{1}{2}$ *hekat*, which is quite differently made, having only one stroke. The sign can, in fact, hardly be anything but the numeral 20. The 𓆏 which S. reads after it seems to me a most doubtful restoration² if, as S. assures us on p. 84, the gumming of the papyrus is correct here—and L. 3 below seems to show that it is. In xxxi, 4 the reading 𓆏 is by no means certain. Both here and in xxxviii, 2 this sign, which in both cases precedes a figure, is differently made from the undoubted 𓆏 of xxxvii, 1, 2 and 4, and though this may be due merely to the vagaries of our scribe, 𓆏 would seem on the face of it the more probable reading. In any case 𓆏 could not be an abbreviation for the verb 𓆏 , "to measure," for Egyptian, when it abbreviates, uses not phonetic signs but word-signs or characteristic determinatives. In xxxi, 4 𓆏 seems right, but what follows looks to me more like a cursive writing of the number 500 than 𓆏 . The three tall and three short strokes which follow are a complete mystery. The whole example is clearly so corrupt that speculation as to what may originally have stood there is almost valueless.

In xxxi, 7 the first stroke should be marked *sic*, for it ought to be the dot, 1 *hekat*, not the tall stroke, 10 *hekat*.

P. 92, no. 12. Note δ . It is not quite correct to say that the words are intrusive here from another problem. The writer has mixed up two phrases either of which might have been used: "For behold, what he said was 1 ten-*hekat* and three *hekat*" and "Since one ten-*hekat* and three *hekat* is equivalent to 13." The simplest thing is to replace *mlk dd-nf* by *hr ntt*, "because." The point, as S. has seen, is that the special *hekat* notation is here being reduced to ordinary numerals. This is a very clear example of the Egyptian's logical treatment of units. The *pfsc* which he is to find is a pure number, and consequently he abandons the *hekat* unit at the outset, with a word of explanation, and works the sum throughout in pure numbers.

P. 95, no. 20. Note j (p. 97). This note misses the point. The data of the sum, 1000, 20 and (by implication) $2\frac{1}{2}$, are pure numbers, and the working is all in pure numbers, as also is the result $133\frac{1}{2}$. It is only at the end that this result can be turned into *hekat*. See above, under No. 12.

In xxxvii, 2 *bdt* seems to be written $\text{𓆏} \text{𓆏}$ (the two determinatives are not joined). The horizontal stroke which follows can hardly be 𓆏 , which is not so written except under another sign.

P. 98, no. 21. S.'s interpretation of the nature of the problem is certainly right, but there are some difficulties of reading. The word *dbn* in xxxviii, 1 is suspicious, by reason of the writing of the "syllabic" 𓆏 and the absence of the determinative 𓆏 . In xxxviii, 2 the 𓆏 should probably be read 𓆏 on both occasions

¹ In Pap. Prisse, l. 22, however, *dbt*, "to stop up," is written without the 𓆏 .

² S. takes it with *hr-k* in the next line to complete *hr-hr-k*. But the papyrus never divides a word over two lines, and in any case *hr-k dd-k* can stand alone (cf. xi, 3).

(see above under No. 16). In xxxix, 1 the second group is beyond all possible doubt not $\frac{e}{n}$ but $\frac{1}{n}$, and consequently the first group is $\frac{1}{n}$, giving *ir-hr-k ir-k dmd¹ n n*, "You are to make the total of these," i.e., of the 20 and the 40 cakes. Turning back to the third group in xxxviii, 6, the top sign is certainly not $\frac{e}{n}$, which is made without lifting the pen²; nor is there room beneath it for $\frac{e}{n}$. I cannot transcribe the group; we need a plural pronoun such as *n* or *n(f)*, but it is neither of these.

In xxxix, 2, *mik šbn r* $\frac{1}{16}$ (*sic*) may mean "the average is at the rate of $\frac{1}{16}$." But why, in any case, is the fraction not reduced to *hekat* notation, for, like the data $\frac{1}{8}$ and $\frac{1}{16}$, it is a fraction of a *hekat*?

P. 101, no. 11. S. has gone hopelessly wrong here through an incorrect transcription. The numeral 100 occurs three times in the problem and he has on each occasion failed to recognize it; in xxi, 3 he has read it as $\frac{1}{10}$, in xxii, 2 as $\frac{1}{10}$, and in xxii, 3 as $\frac{1}{10}$. Further alterations to be made in S.'s readings are as follows: Read $\frac{1}{10}$ for $\frac{1}{10}$ *passim*. In xxi, 4-6 read $\frac{1}{10}$ and $\frac{1}{10}$ for $\frac{1}{10}$ and $\frac{1}{10}$ respectively. In xxii, 3 for $\frac{1}{10}$ read $\frac{1}{10}$. The real difficulty lies in the word with which xxi, 4 and 5 begin, and which occurs again in xxii, 4. For the first sign, \square is palaeographically just possible, though a comparison with the other instances in this papyrus shows that this would be an extreme form, and in view of the very different form given to \square in writing *phdt*, where, as here, it stands alone, the reading $\frac{1}{10}$, *št*, is preferable. This is confirmed by the writing with phonetic complement $\frac{1}{10}$ in xxii, 4. In the ligature which follows the top sign might be *r* or *t* (*d* is mostly better made) and the lower *r*, *t* or *n*. The determinative looks like $\frac{1}{10}$.

The example may be translated as follows: "Example of reckoning the work of a man in logs. If they say to you, The work of a man in logs; the amount of his work is 100 logs of 5 handbreadths section. He has brought them, however, in logs of 4 handbreadths section. You are to square these 5 handbreadths; result 25. You are to square the 4 handbreadths; result 16. You are to treat this 16 to get 25; result (1) $\frac{1}{16}$ times. You are to take 100 this number of times; result 156 $\frac{1}{4}$. Then you shall say to him (i.e., the setter of the problem), Behold, this is the number of logs which he brought of 4 handbreadths section. You will find it correct."

This explains itself. The unknown word beginning with *št*- must be either the diameter, if the logs are circular in section, or the side, if they are square. *phdt*, a "log" or similar, must be a derivative of *phd*, "to cut up" (*Wb. d. aeg. Spr.*, I, 542). The logs are regarded as being in both cases of equal length. *bkw* may be either "work," if the man has been made to cut up wood, or "contribution," if he has merely had to provide it. The pronoun *tn* suggests that $\frac{1}{10}$ is feminine.

P. 106, no. 23. S.'s interpretation of this exceedingly difficult problem is unconvincing for several reasons. In the first place, the words *mik 3 $\frac{1}{2}$ pw n hrw* in the last line cannot mean "It is 3 $\frac{1}{2}$ days" but only "It is 3 $\frac{1}{2}$ in a day." Secondly, he introduces into the calculation a figure $\frac{1}{3}$ (relation of the ordinary working-day to the extraordinary) which is not in the data. Thirdly, one of the data, 10, is, on his theory, entirely unnecessary to the problem. Fourthly, the Egyptian for "a day which is long," i.e., "a long day" (L 5), is not *hrw lw-f r wr*, which, if it meant anything at all, would be definitely future. Fifthly, *n hrw 10* (L 3) cannot express duration of time, "for 10 days," but only time within which, "in 10 days"; and lastly, S.'s translation completely fails to convey the sense of the problem such as he conceives it to be.

But though it is easy to make these criticisms it is difficult to suggest an interpretation which will fit the words as they stand. The answer is "It is 3 $\frac{1}{2}$ in a day," and it is reached by taking the *rmn*, if this be the right reading, of the 5 and the 10, which seems to be the result of dividing each by the smaller, namely 5, by adding the resulting 2 and 1 to make 3, and by dividing the greater, 10, by this 3. Now it will readily be seen that this working and result correspond to the following problem: "If a cobbler can cut out 10 pairs of sandals in a day and can decorate(?) 5 pairs in a day how many could he both cut out and decorate(?) in a day?" and it is hard to see to what other problem the working would correspond. The problem might then have run as follows: "Example of reckoning the work of a cobbler. If they say to you, The work of a cobbler; the number he can cut out in a day is 10 (pairs of sandals); the number he can decorate(?) in a day is 5. As for the number he can both cut out and decorate(?) in a day, how many is it?" This must not be regarded as a translation of the Egyptian as it stands. It would need, above all

¹ The *n* shown by S. after *dmd* in xxxviii, 6 is not there.

² There is, however, an odd but not parallel form in xxxvi, 1.

things, the copula *pw* after the numerals 10 and 5 in line 3, and we should expect *wdf*-f and *dbt*-f in lines 2 and 3, which I take as relative forms, to be neuter, unless we take them as masculines agreeing with the numerals 10 and 5 respectively. The puzzling *in iw* in line 4 I take as if it were simply $\overline{\text{Q}}$, followed by relative forms *wdf*-f and *dbt*-f which again seem to be masculine. In line 5 I cannot help thinking that $\overline{\text{Q}}$ is to be read, and that it is the interrogative "how much" or "how many," cf. Rhind, 45, 73. *iwfr* *iw* would be good Egyptian for "How much does it come to?" (Gardiner, *Eg. Gramm.*, § 122), though once more we should expect the neuter *iw-i*.

The remaining lines fit my interpretation well as they stand: "You are to take the *run* of the 10 and of the 5; result 3. Take this to find 10; result $3\frac{1}{2}$ times. Behold it is $3\frac{1}{2}$ per day. You will find it correct." The reading *run* seems highly probable, but it is not possible to get S.'s $\overline{\text{Q}}$ out of the sign below the \rightarrow ; in any case the phonetic writing of the dual $\overline{\text{Q}}$ would, in a word which is written in full, surely precede the determinative.

P. 112, no. 25. After *in* in l. 2 we must read $\overline{\text{X}}$ or $\overline{\text{X}}$, not $\overline{\text{B}}$. Our scribe, consistent in few things, is consistent in not turning down the base stroke of $\overline{\text{B}}$, and the head of the bird here intended is not that of $\overline{\text{B}}$. Since the fuller form of *m* is not used elsewhere in the papyrus, the probability is in favour of the reading $\overline{\text{X}}$, though its diacritical point is omitted.

In any case the particle *i* could not possibly stand here. We need an interrogative pronoun *m* or *mi* and we expect the definite article *pi* (cf. No. 19 and Rhind, 36). The original reading was doubtless *in m¹ pi* *ch*. Out of the three birds $\overline{\text{X}}$ $\overline{\text{X}}$ $\overline{\text{B}}$ which thus stood together our scribe has reproduced only one, probably a defective $\overline{\text{X}}$. The phrase is to be translated "What is the quantity that says it?"

dd iw cannot, to my mind, mean "names itself" ("nennt sich"), for *dd* means "to say," not "to name," which is *dm*. Sethe's rendering "der von sich (so) redet," quoted in note *f*, I do not understand, for *iw*, even if it is reflexive, can still only be the direct object of *dd*, and the verb *dd* means to "say" (*sagen*), not to "speak" (*reden*).

P. 114, no. 19. In l. 2 *m* is the interrogative pronoun, "What is the quantity that says it?" and the scribe has omitted the phonetic complement $\overline{\text{B}}$ in the *pi* which follows. Read therefore $\overline{\text{X}}$ in place of $\overline{\text{B}}$, which, as noted above, never shows the turned-down base stroke.

P. 120, no. 18. S. has ably analysed the difficulties of this problem, in which, as the jumble of figures in the last line shows, the scribe was quite out of his depth. S.'s surmise that the problem was to find the area of a strip of a *dnw*-garment which measured 5 cubits 5 handbreadths (not spans as S.) by 2 handbreadths involves the supposition that it was worked by reducing the 5 cubits to 35 handbreadths and multiplying this by the 2 handbreadths, result 70; then multiplying the remaining 5 handbreadths by the 2, result 10; and lastly adding the 70 and 10 to get 80, a figure which actually stands in the last line (p. 123). Such a piecemeal procedure is wholly foreign to the Egyptian's conception of units and dimensions. There are other difficulties; S.'s reading of 35 in line 4 is quite impossible, for the unit figure can be nothing but 3 (cf. the careful vertical stroke of 5 throughout this problem), and the tens-figure, with what looks in the photograph like a single stroke, not two separate dots, above it, cannot be 30, but is more likely 20 or 50. Moreover, though S.'s reading $\overline{\text{T}}$ is palaeographically quite sound, his treatment of it as an erroneous writing of *dnw* gives poor sense, for, while it might be reasonable to ask for the area of a strip of cloth, it is absurd to ask for that of a strip of a particular kind of garment. In any case we have no authority for translating $\overline{\text{Q}}$ as a strip. And lastly, even if *stwt* meant "area," a meaning for which I can see no evidence (see under No. 6), the expression used in the first line for finding the area would indeed be a strange one: "Example of working out a strip of a *dnw*-garment of 5 cubits 5 handbreadths by 2 handbreadths turned into area" or "expressed as area" (where *ir* cannot be an active participle as S. thinks, but is rather an Old Perfective. See under No. 15, l. 3).

But though it is easy to point out objections to this interpretation it is not easy to suggest another. In the first line three figures are given. The first is the cardinal numeral 5. The next is either the fraction $\frac{1}{2}$ (in which case it might go with the preceding 5), or $\overline{\text{I}}$ 5 handbreadths or $\overline{\text{I}}$ 5 *setat* or *arurae*. No hint is given of the relations of these three figures to one another, and, what is worse, in line 4 the first and third are coupled and the second is omitted; and if what is done in that line is to reduce 5 cubits

¹ It looks as if the older form *m* and not *m¹* had been written both here and in No. 19.

in consequence of debts to the Crown, (4) voluntary submission of debtors to servitude and sales of debtors enforced by their creditors. The voluntary sales of the first category are divided into three kinds. I do not feel sure that Westermann is right in supposing that the general heading $\delta\epsilon\iota\kappa\tau\acute{\iota}\kappa\alpha\iota\ \epsilon\pi\iota\ \tau\acute{\omega}\nu\ \delta\gamma\omicron\rho\alpha\tau\epsilon\mu\omega\upsilon\kappa\omega\upsilon\kappa\alpha\tau\alpha\rho\acute{\alpha}\phi\alpha\upsilon\tau\alpha\iota$ applies to the first subdivision only; but in any case, from the treasury's point of view, the essential difference between the first and second subdivisions was this: in case (a) the vendor paid 9 drachmae $2\frac{1}{2}$ obols per mina together with the brokerage fee of 4 dr. 1 ob. and the purchaser paid 8 dr. $2\frac{1}{2}$ ob. per mina, while in case (b) the purchaser paid all the taxes, amounting to 20 dr. 1 ob. per mina, and the brokerage fee of 4 dr. 1 ob. In case (b) the price of the slave would naturally be decreased by the amount which in case (a) the vendor had to pay in taxes, and to counterbalance the effect of this the *ad valorem* tax was increased by 2 dr. 2 ob. per mina. One can calculate that this increase would produce an approximately equal revenue, but it would be interesting to know how the exact figure was arrived at. The reasons for the variations of the *ad valorem* tax in the other categories are less obvious.

It appears from the text that first one, then another of the small fees payable on completion of a sale was allocated *eis tēn Dikaiarchou δωρεάν*. This Dicaearchus was in all probability the infamous Aetolian pirate who served for a short time in the army of Ptolemy Epiphanes; and Westermann therefore dates the papyrus to about 198-197 B.C. His chapter about Dicaearchus and the practice of rewarding such adventurers with pickings from the public revenue is most interesting. But the explanation of *P. Petrie III*, 53 (s), in which a *δωρεά* of this kind is mentioned, though in itself a reasonable hypothesis, seems to me to do some violence to the Greek; without the context one can scarcely hope to grasp the exact meaning of such an isolated fragment.

A new interpretation is likewise given of the puzzling *P. Gradenwitz I*, a decree of Ptolemy II about payments to be made in connexion with slaves. Westermann points out that the payments have a striking resemblance to the sale taxes of the *δύργαμμα*, and he concludes that the subject of the decree was the sale of a "job lot" of slaves by the Ptolemaic government at the price of a mina per head, the sums specified being not the purchase money, but the taxes and fees. This seems a likely enough explanation and has met with the approval of Wilcken, who had been the first to suggest that the government was selling a large number of prisoners of war. Nevertheless I do not feel altogether satisfied with it. According to Westermann's theory the first three lines of the decree, which are scarcely legible, must have said in effect: "Let all who wish to buy captive slaves at the price of 1 mina per head declare their intention." Why then does the decree, when it specifies the sums to be paid by each purchaser, mention only the taxes and omit the more important purchase money? Surely it ought at least to have added *καταβαλεῖν ὅμα τῇ τιμῇ*. Is it not equally possible that the subject of the decree was a demand for the registration of slaves irregularly acquired and for the payment of a fixed sum in lieu of the ordinary sale tax?

The concluding section of the book discusses the extent and character of slavery in Ptolemaic Egypt. Westermann's conclusions coincide with the view taken by Wilcken in his *Griechische Ostraka*, that slaves in Egypt were for the most part in domestic service and that those employed in agriculture and handicraft were comparatively few. On the whole one cannot but agree. The native population was so large and so economically exploited that there was no call for slave labour on a big scale. But there were certainly great numbers of slaves in the Greek households, both in town and country, working in fields and farmyards as well as in the kitchen and the bakery; some too were well educated and held responsible positions. Among the many retainers of Apollonius the dioecetes it is difficult to distinguish between free men and slaves. A passage in Westermann's argument may be cited in illustration of this point. Speaking of a loom-worker called Choirine he infers that she was a free woman from the fact that in a list of payments in wheat her name occurs along with those of three men, Ballion, Eutyclus and Numenius, who appear from another account to have been in receipt of a monthly salary in money. But, curiously enough, in some other documents, partly unpublished, these very men are referred to as follows: *Βαλλίωνι παιδί, Εὐτύχου τοῦ παιδὸς μου, Νουμηνίῳ τοῦ παιδὸς* and *Νουμηνίῳ παιδί*. I had hitherto supposed that in such designations *παῖς* bears its usual meaning of "slave"; but if Westermann is right, these men were free employees.

C. C. EDGAR.

The Difnar (Antiphonarium) of the Coptic Church. Part III. By DE LACY O'LEARY. London, 1930.

The Difnar (*Ἀντιφώνάριον*) is a collection of hymns in honour of the Saints and Festivals of the Coptic Church, which are appointed to be sung at the Evening (Vigil) and Morning Service of Incense. The *Journ. of Egypt. Arch.* xvii.

source from which these hymns have been compiled is, in most cases, the Arabic Synaxarium or Martyrology of the Coptic Church, a fact which must be borne in mind when dealing with the date of the composition of the Difnar. Assuming that the Synaxarium was compiled towards the end of the first half of the thirteenth century, we may, perhaps, place the composition of the Difnar somewhere in the latter half of the same century. Who was the author of these hymns and where they were produced are not known, but we shall probably not be wrong, if we assign their composition to one of the Coptic monasteries, possibly to that of St. Macarius in the Wādī Natrūn, where we learn that down to a late period the use of Arabic was excluded from the services.

For each day in the year the Difnar contains two hymns; one of these, in the mode "Adam," is to be used when the day falls on a Sunday, Monday, or Tuesday, and the other, in the mode "Batos," is for use when the day falls on any one of the four other days of the week. The average number of verses of an hymn is four, and each verse is made up of four short stanzas. Proper names are spelt according to the Arabic pronunciation of the Coptic forms, which, of course, is natural seeing that the hymns were compiled from the Arabic, but which may also have been intentional, since in the thirteenth century the proper Coptic and Greek names of the Saints would probably not have been understood. The main theme of the hymns is the praise of the Saints together with brief remarks on their life and deeds, as is illustrated by the following hymn appointed for the feast of St. Simon the Apostle on the 9th Abib:

"O come all ye Christians to-day, and let us hymn Christ our God in truth,
And let us pray to Him to have mercy upon us, and to give us a share and an inheritance
With the Apostle Simon Cleophas, the true disciple of Jesus Christ,
Who was established bishop over Jerusalem the Holy City."

With the present volume (Part III) Dr. De Lacy O'Leary concludes his edition of the Difnar. For the last four months and the intercalary days of the Coptic year he has selected for his text the MS. Copt. Borgia 53 (2). Unfortunately, all MSS. of the Difnar are extremely late, mostly of the second half of the eighteenth century, and, MS. Borgia 53 (2) being no exception to this rule, such debased spellings as *eggelos* for *aggelos*, *epostoulos* for *apostolos*, and *maša nek* for *maše nak* are of frequent occurrence.

There is, however, an early copy of the Difnar, hitherto unnoticed, in the library of the Monastery of St. Antony in Egypt. This MS. is dated A.M. 1101 = A.D. 1385, and it is greatly to be hoped that at some time or other its contents may be examined. The Coptic text would in every case be superior to that of our eighteenth century MSS., and besides, it is quite possible that it may contain hymns not preserved in the modern copies of the Difnar, and would thus reveal more than one recension of this Hymnal as in the case of the Synaxarium.

O. H. E. BURMESTER.

Bases, méthodes et résultats de la chronologie égyptienne. Compléments. By RAYMOND WEILL. Paris, 1928.

The present book is a supplement to the work on Egyptian chronology published by Weill in 1926, and is devoted to the discussion of various points of detail. So far as the dynastic chronology is concerned, the first two chapters are the most important. Here Weill discusses the possibility of artificial adjustment of the mobile civil year to the true year, and comes to the conclusion, which few will dispute, that there was no interference as far back as the coincidence of the civil New Year's Day with the heliacal rising of Sirius which fell in 2778 B.C. For the period prior to that date Weill seeks to show that there was artificial interference with the civil year, basing this opinion on the occurrence of a "short year" of 320 days on the Palermo Stone under the First Dynasty. Here his arguments are much less convincing, since several possibilities may be invoked to account for this "short year." The one point that does clearly emerge is that the evidence is against the possibility of an undisturbed "Sothic Cycle" of 1460 years prior to 2778 B.C., which date, as Weill points out, is probably approximately that of the "installation of the calendar" and the beginning of the first "Sothic Cycle" for which there is evidence, although, on the strength of astronomical data, in his third chapter he brings this date down to 2769 B.C.

The fourth chapter is devoted to a criticism of the researches of Borchardt and Neugebauer concerning the angular height at which Sirius was visible in morning observations at various dates and latitudes in Egypt¹; here Weill demonstrates that an error of calculation seems to have crept into the tables published by these scholars. For the rest, Weill shows briefly that the Egyptians were able to announce in advance

¹ O. L. Z., xxix, 310 ff.; xxx, 441 ff.

the date in a given civil year on which the heliacal rising of Sirius would occur, and then goes on to discuss how far the Greeks were acquainted with the peculiarities of the Egyptian calendar; in this connexion he comes to the conclusion that the calendrical reforms of Julius and Augustus were not influenced by the fixed Sothic year of the Egyptians. Finally, attention is drawn to certain abnormalities in the dates of the beginning and ending of the Feast of Amân in Luxor (Paophi), as compared with the other monthly feasts of the Egyptian calendar.

It only remains to add that this work adequately fulfils its purpose as a supplement to the author's principal work on Egyptian chronology.

R. O. FAULKNER.

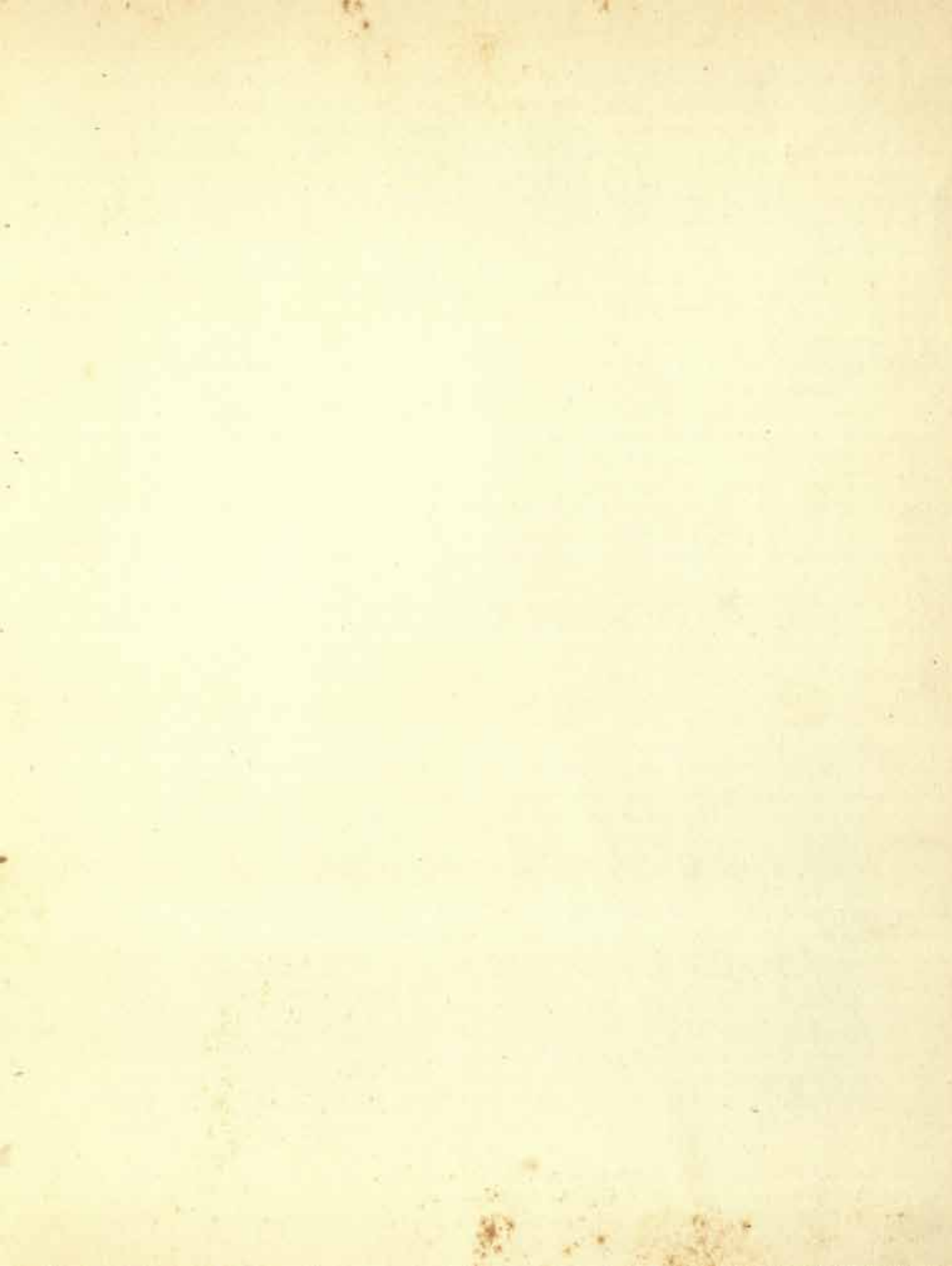
Memphis. À l'ombre des pyramides. By JEAN CAPART and MARCELLE WERBROUCK. Brussels, 1930.

This work is a companion volume to the study of Thebes by the same authors which was reviewed in *Journal*, XII, 138, and it maintains the standard of interest and appearance set by the earlier publication. Addressed primarily to the tourist who really desires to understand and appreciate the monuments which he visits, this book gives an admirable conspectus of the civilization of the Old Kingdom. The first chapter gives an account, alas only too true, of the kind of excursion the tourist achieves under the guidance of the average dragoman, and of the impression left on his mind at the end of his travels. The authors then take the reader on a model conducted tour to the various sites available from Cairo, explaining the significance and points of interest of the monuments visited. Four chapters are concerned with this model tour, and the remaining fifteen are devoted to an account of the Old Kingdom in its various aspects. Not the least pleasing feature of the work is the large number of excellent photographs with which it is provided, some of them illustrating recent excavations.

There is, however, one point on which this book is open to criticism; the numbered references in the text to the relative illustrations are not always accurate. The following corrections have been noted: p. 85, line 20, for 128 read 133; p. 104, line 21, for 120 read 138; p. 275, last line, for 114 read 112; p. 281, line 5, for 169 read 132; p. 352, line 2, for 207 read 247; p. 353, line 34, for 224 read 246. It is also surprising to find the sages Kagemni and Ptahhotpe of the Prisse Papyrus definitely associated with tombs bearing those names at Saqqarah, without any hint that the correctness of the identifications is decidedly open to doubt.

These are, however, minor blemishes in a work which admirably achieves its aim of initiating the educated traveller into the secrets of what is, in many respects, the best period of Egyptian history. We look forward to an English edition of this volume.

R. O. FAULKNER.





1



2



3



4

Reliefs in the Tell el-'Amarnah style.

Now in the British Museum.

Scale: 1 & 2 c. $\frac{1}{4}$, 3 & 4 natural size.

A PORTRAIT OF SMENKHKERĒ(?) AND OTHER 'AMARNAH FRAGMENTS IN THE BRITISH MUSEUM

By H. R. HALL

With Plate xv.

The two small examples of 'Amarnah art published in Pl. xv, figs. 3 and 4, are sculptor's sketches or trial pieces. No. 26810 (Fig. 4) is a trapezoidal fragment of grey limestone, $3\frac{1}{2}$ by $2\frac{1}{2}$ by $\frac{5}{8}$ in. (7.9 by 6.3 by 1.6 cm.), on one side of which is cut in hollow relief a small portrait sketch of a king, either Akhenaten or SmenkhkerĒ. He wears the short round form of the *nemes* headdress (hair-bag) without shoulder-flaps or tail, and carries a large uræus on the forehead-band. The face is of Akhenaten's type, but more delicate and sensuous, with a small button-like nose unlike Akhenaten's. It may well be a representation of SmenkhkerĒ. It is too feminine for Tutankhamūn. The fragment has two parallel perforations close to the upper edge.

No. 15973 (Fig. 3), a similar fragment, but of white limestone, approximately $2\frac{1}{4}$ in. (7 cm.) square, shows a rough sketch in hollow relief of a mother suckling a baby. Both are naked; she is sitting on the ground. The baby is hairless; the mother's hair, in a long bob, is fastened back by a band over the ears. Her face is very roughly indicated.

In the *British Museum Quarterly*, 1926, 2, Pl. xxiii, 42, I published photographs of two recently acquired relief fragments that evidently came from El-'Amarnah. I reproduce them here in a more purely Egyptological environment.

No. 47988 (Fig. 2), a slab of coarse white limestone 16 in. (40.6 cm.) long by $9\frac{1}{2}$ in. (24.2 cm.) high, cut from the wall of a tomb, is sculptured with a representation in hollow relief of a procession of blindfolded men, possibly harpers. Only the upper parts of the bodies are on the stone. The figures are in two groups, that in front consisting of two individuals apparently on their knees, as their heads are much lower than those of the other group, which is of three. All are men, and all are blindfolded. By their appearance they may be judged to have belonged to no very high order of society. The nearer man of the front group has his hair or wig dressed in an unusual manner, in two tails, one hanging over his left shoulder, the other apparently over his right. The sculptor has had some difficulty in representing this, but I think this is what he meant; evidently the hair was parted down the middle, behind as well as in front, and disposed in two tails, one over each shoulder. The figures of the two groups are represented in the usual style of relief, one profile in front of the other.

No. 47989 (Fig. 1) is a piece cut out of a tomb-wall, of finer cream-coloured limestone, measuring 7 by $6\frac{1}{4}$ in. (17.75 by 15.8 cm.). On it is cut in hollow relief a figure of a courtier or upper servant, in rather elaborate full-dress of goffered linen with balloon-like apron, but with no wig; he is apparently engaged in sweeping the ground with a long besom, over which he bends forward deeply.

PRIMITIVE METHODS OF MEASURING TIME¹

WITH SPECIAL REFERENCE TO EGYPT

By R. W. SLOLEY

With Plates xvi-xxii.

Measurement of Time. Units.

How is time measured? Consider how we should measure a length, such as that of a table. We should choose a "bit of length"—a unit, a foot-rule or a yard-stick, suppose, and find out how many times we could place it in successive end-on positions, until the whole length of the table had been covered. We express the result as so many feet or yards, as the case may be, and allow for fractions over and above an exact multiple of the unit.

In the same way we could measure the mass of a body, such as a lump of lead. We choose unit lumps of brass or iron—let us say, pounds—and, by means of a balance, find out how many are required to counterpoise our lump of lead.

But with time we encounter a difficulty. We cannot take a little "chunk of time" and use it in the same way. Before we could grasp it, it would slip through our fingers, as it were, and be—past. Time is not repeatable, not recoverable, not usable again.

If the idea of Time presents difficulty, we might expect its measurement to be far from easy. In fact, as we shall see, we are forced to have recourse to the measurement of *something else*—the movement of something in space (such as that of a pointer over a dial), or a set of movements in space. All the methods so far employed—shadow clocks, water clocks, candle clocks, as well as mechanical contrivances such as modern clocks and watches—really measure time by a motion in space. The measurement of time is no easy matter; a scientific unit is only arrived at after much thought and reflection.

The sun seems to be a natural time-keeper. As starting-off point, let us take noon, when the sun is on the meridian at the highest point of its course across the heavens, and when it casts the shortest shadow. The earth turns on its axis, and on the next day we observe the instant when the sun is again on the meridian. The interval between two successive noons, we call a day—a day by the sun—a "sun-day."

But the sun is a very bad time-keeper, owing to the fact that the motion of the earth round the sun is not uniform. One reason is that the earth moves faster when nearer the sun in winter, and slower when farther away in summer. The motion was neatly summed up by Kepler in his famous law: "Equal areas in equal times." In the

¹ This article is in the main the substance of a lecture given before the Egypt Exploration Society on November 12th, 1939. The introductory paragraphs, in which the lecturer dealt with the philosophical conception of time, have, for lack of space, been omitted.

diagram (Fig. 1) the oval curve represents the path of the earth round the sun at one focus. The eccentricity is purposely exaggerated for clearness. The twelve areas into which the oval space is divided by the radiating lines are equal in area and are described in equal times. It is clear that the portions of the earth's path described in equal times are *not* all equal. The earth must travel faster to cover the longer distances in winter and slower when traversing the shorter distances in summer.

Now it would be very inconvenient to have to keep altering our clocks and watches to keep exact time with the sun, and so astronomers have invented a special point-sun, which moves with perfect regularity. This gives us "mean solar time" or clock-time. Clock-time coincides with sun-time (as given by a sundial) only on four days in the year, the greatest difference being nearly $16\frac{1}{2}$ minutes on November 3rd, when the dial indicates noon $16\frac{1}{2}$ minutes before the clock. The differences may be plotted conveniently for different days in the year in a figure-of-eight curve. From such a diagram (Fig. 2) the difference for any day of the year (i.e., the "equation of time") can be read off at a glance.

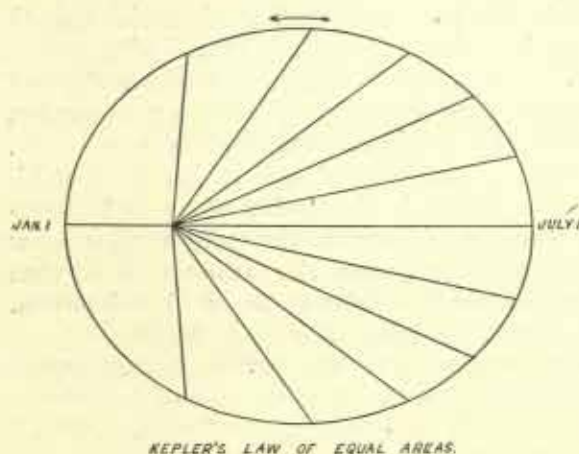


Fig. 1

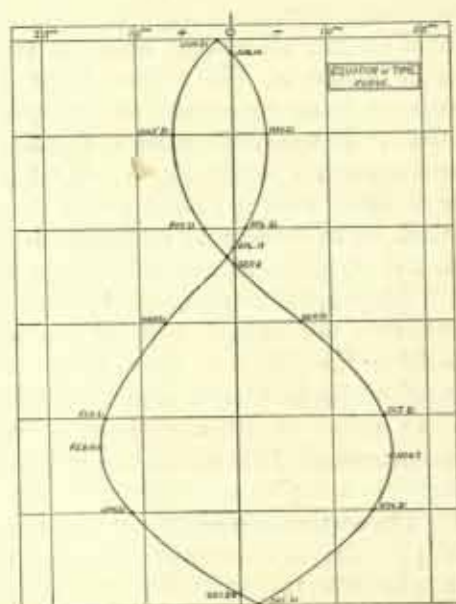


Fig. 2

A sundial may be so constructed that a spot of light from a central hole in a disc, falling on such a curve, will indicate midday by the clock. There is one of this type on the wall of St. Peter's Church, Geneva.

Ultimately, our clocks are really timed by the stars. The master-clock is our earth, turning on its axis relative to the fixed stars. This earth-clock keeps excellent time, not absolutely exact, but sufficiently so for all practical purposes. The day is very gradually lengthening at the rate of about one minute in nine million years. It is about one thirtieth part of a second longer than 5000 years ago when the pyramids were young.

Now, it is the almost perfect regularity of the earth-clock that enables us to employ regularly moving mechanism for the purpose of measuring time. The pendulum swings to-and-fro in equal intervals of time, and a balance-wheel under the action of a control spring swings with almost perfect regularity. The Astronomer Royal recently referred to

clocks at Greenwich Observatory which have shown in a period of 21 months a variation of only $1/200$ second a day, a degree of accuracy which is truly astonishing.

The real problem is to divide the period of rotation of the earth into equal parts, first into hours, then into minutes and seconds. The problem did not worry the ancients as they needed only a very rough division of time—in fact, as we shall see, they had no simple means of ascertaining whether their time intervals were equal or not.

The Development of the Time Idea.

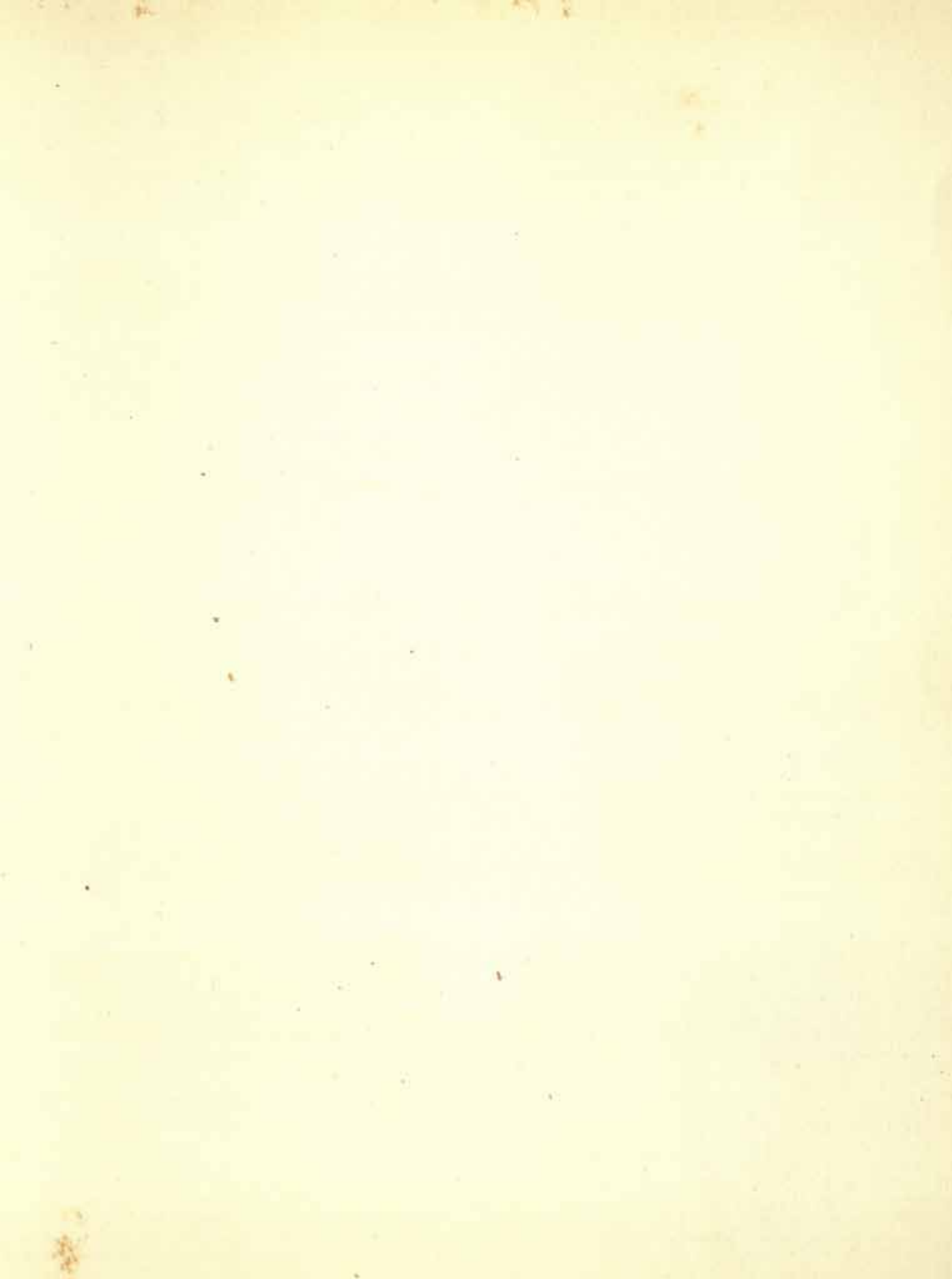
Let us now turn to the past and attempt to follow the development of the time idea in the mind of primitive man, and see how he dealt with the problem of time measurement. It is no easy matter to think ourselves back into his mind. Only the briefest sketch can be given here.

Time was when man first woke to conscious thought. The alternations of day and night began to attract his attention. He thought about them and reflected; previously he had taken them for granted. He watched the sun god with apprehension during the gradually shortening days towards winter, sinking lower and lower in the sky. Would he disappear altogether, never to return? Magic was called in to woo him back. As every reader of *The Golden Bough* knows, the Eskimos still play at cats'-cradle in autumn in an endeavour to entangle the sun and so prevent his disappearance for the winter. It was with relief that early Man watched the sun passing the turning-point and mounting slowly day by day higher in the heavens, spreading his genial warmth once more over a chilled earth. The turning-point was marked by a festive season, which we still celebrate at Christmastime. So Man began to think, to ponder and reflect on the mysteries of the universe in which he found himself, to question and to wonder.

Long ages must have elapsed before any systematic observations were made. Probably the earliest were of shadow lengths. Man realized that he had to shift his position from time to time, if he wished to remain in the shadow of a rock in a sun-scorched land. Stones placed in various positions to mark the extremity of the shadow of an object at different times of the day probably formed the earliest mode of time measurement. It is not a great step towards the rough division of the day into intervals. But it is a much more difficult matter to make these intervals of equal length.

The earliest records of time measurement that we have date back to Ancient Egypt. People living in the neighbourhood of a fluctuating river find it of the greatest importance to take observations of the stars in connexion with the critical times of the agricultural cycle, such as sowing-time and harvest. The Calendar was brought into use by the Egyptians at a very early date, at least 3000 B.C., when New Year's Day¹ (The Opening of the Year; first month of inundation, day 1) coincided with the heliacal rising of Sirius (The Going up of the Goddess Sothis). When Sirius, after a period of invisibility, was first again observed in the sky just before sunrise in the latitude of Memphis, the Egyptians knew that the Nile should begin to rise again. The Civil Year, however, comprised 12 months of 30 days and 5 "added days," making 365 in all. This is about $\frac{1}{4}$ day shorter than the astronomical year determined by observations of Sirius. The Egyptians did not introduce an extra day every four years (as we do in Leap Years); and thus the civil calendar soon got out of step with the astronomical calendar. In 4 years the civil calendar was one day in advance; in 120 years the winter solstice fell on Jan. 25 and in 720 years on June 25; after a lapse of 1460 years the calendars coincided once more.

¹ Gardiner, *Eg. Gramm.*, 205.





1



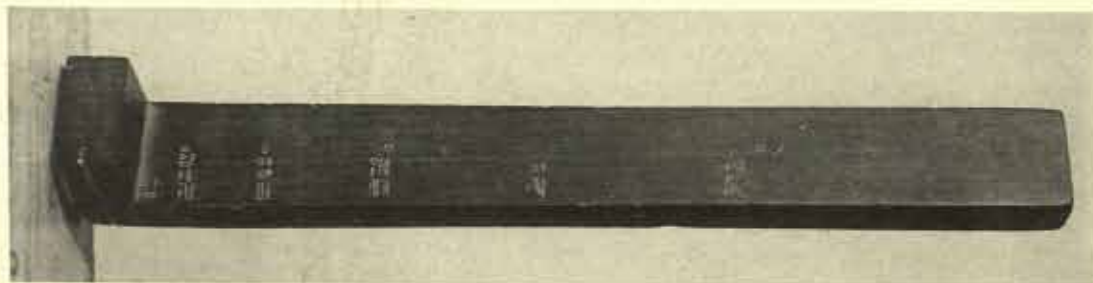
2



3



4



5

1. End-block of a rod clock. Berlin Mus. 14573. Scale $\frac{1}{2}$.
- 2 & 3. Instrument for determining the vertical. Berlin Mus. 14084. Scale $\frac{1}{2}$.
4. Sighting instrument (*merkhet*). Berlin Mus. 14085. Scale $\frac{1}{2}$.
5. Rod clock with hour-markings. Berlin Mus. 19743. Scale $\frac{1}{2}$.

The stars were studied and mapped out at an early date, and were grouped according to a fancied resemblance to some human being, animal or object. The arrangement, however, was not the same as our own, which is derived from the Babylonians, who grouped the stars in a different manner. Several examples of star maps survive on walls of temples.

Observations of the stars were made by a simple sighting instrument, the *merkhet*. One dating from the Twenty-eighth Dynasty is now in the Berlin Museum¹ (Pl. xvi, fig. 4). Another similar instrument was discovered by Breasted in an antique dealer's shop in London and bears the name of Tutankhamūn². The former consists of the middle rib of a palm leaf, slotted at the broader end, and is inscribed: "Indicator for determining the commencement of a festival and placing all men in their hours...." The slot was held close to the eye and the observer looked northward towards a plumb-line held at arm's length by an assistant priest stationed a short distance away (Pl. xvii, fig. 1). The plumb-line was suspended from a little rod, held horizontally so that the string hung down alongside a vertical mark on the end block (Pl. xvi, figs. 2 and 3). This rod bears



Fig. 3. (After Lepsius)

the inscription: "I know the going of the sun, of the moon and of the stars, each to his place." The observers sat facing each other on the north-south line and the "hours" were defined when certain stars were seen to cross the vertical cord, aligned over the heart, the right and left eyes, the elbow or other parts of the body of the assistant observer. The results were tabulated in a diagram ruled in squares showing the seated figure of the assistant priest and the stars positioned around him, with details, such as: "the star *Sct* over the left eye; the star that follows Sothis over the left elbow; the stars of the water over the heart," and so on (Fig 3)³.

Several such star maps are to be found in the tomb-paintings of the kings of the Twentieth Dynasty, giving the positions of the stars during the 12 hours of the night, at intervals of 15 days. The times were determined by water clocks, as will be explained later.

In Ptolemaic times the picture of the plumb-line and rod was used as a hieroglyph, as the determinative of the word "hour" (see Fig. 11). In earlier days the use of the star sign ★ as determinative points to the earlier measurements of time by observations of the stars.

¹ Borchardt in *J.Z.*, xxxvii, 10.

² *Scribner's Mag.*, 1925, April, 392.

³ After L., *D.*, iii, 228.

An interesting example of time determination by shadows is to be seen in the *yantra* or observatory at Jaipur in India. This observatory is the largest of five built by Jai Singh between A.D. 1718 and 1734, and was restored some years ago. The shadow of a *samrat yantra* or gnomon 90 feet high is cast on graduated quadrants and travels at the rate of about $2\frac{1}{2}$ inches a minute, a motion which is quite perceptible to the eye. It is, however, very ill-defined. The time is determined to ten seconds.

The *merkhet* instrument appears to have been used in Egypt for aligning temples in the ceremonial observed during the laying of foundation stones. In a wall scene¹ (Fig. 4) the king is associated with the goddess Seshat (*Sšjt*) in this work, and they are depicted in the act of holding the cord, represented conventionally surrounding the inscription. They are grasping the golden hammers. The cord was stretched with solemn ritual along the line previously indicated by the priests, and pegs were driven in by means of the hammers to mark the axis. In one inscription, the king says: "I hold the peg. I grasp the handle of the club and grip the measuring-cord with Seshat. I turn my eyes to the movements of the stars. I send forth my glance to *Ursa Major*. stands beside



Fig. 4. (After Dümichen)

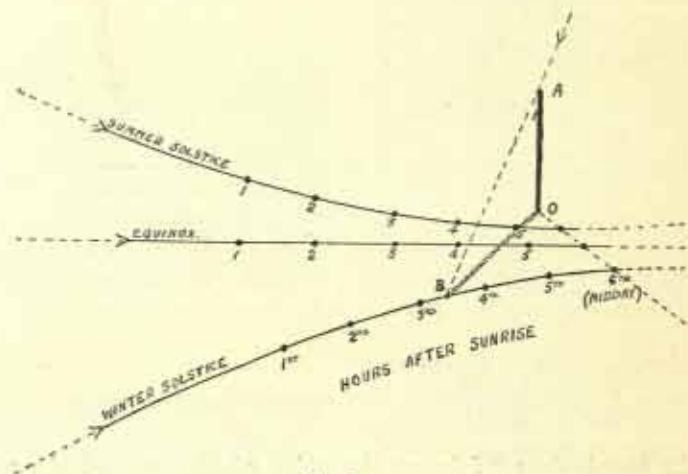


Fig. 5

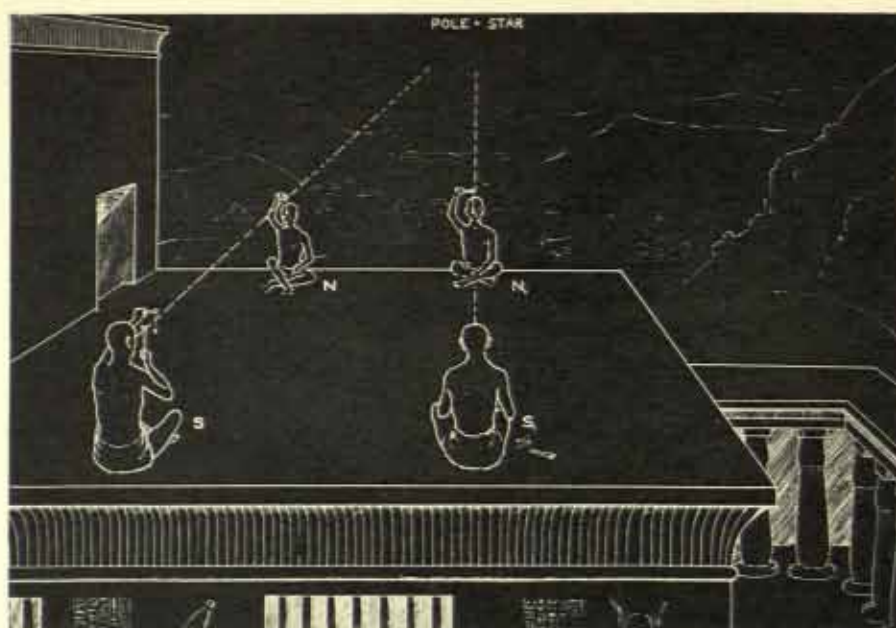
his *merkhet*. I make firm the four corners of thy temple." The phrase "stands beside his *merkhet*" seems to mean that the star personified as a deity is aligned with the *merkhet*².

Time by Observation of Shadow Lengths.

Various devices dependent on the changes in the length and direction of shadows were in use from early times in connexion with time measurement. The shadow cast by any object changes not only in length but in direction during the course of the period of daylight. If the extremities of the shadow of a vertical stick are marked on a level plane at various times of the day, they will be found to lie on a curve, a hyperbola. The curve is different for every date in the year except at the equinoxes when the path of the shadow is the same, a straight line. The equinox line and the curves for summer and winter solstices are shown in the diagram (Fig. 5).

¹ J. Dümichen, *Baugeschichte des Denderatempels*, Pl. 50.

² L. Borchardt, *Ä.Z.*, xxxvii, 10, where this inscription (from Edfu) and others are quoted.



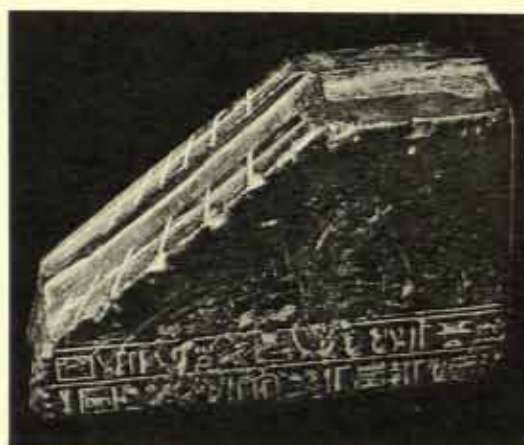
I



2



3



4

1. Priests observing on temple roof (after Science Mus., S. Kens.).
2. Dial from Luxor. Berlin Mus. 20322. Scale $\frac{1}{4}$.
3. Dial with month-scales (after Petrie). Scale $\frac{1}{4}$.
4. Shadow clock. Univ. Coll., London (after Petrie). Scale $\frac{1}{4}$.

Attempts were made by the Ancient Egyptians to record the lengths of the shadows. It was realized that the length of the shadow at any time of day varied with the season of the year, but it is not certain whether the Egyptians ever realized that the latitude of the place must be taken into account. There exists a Nubian table of shadow lengths, but, like many such records, it is so full of inconsistencies as to render its interpretation a matter of considerable difficulty.

A simple form of shadow clock consisted of a little rod of wood or ivory provided with an end-block. Several fragments of these have been found. One is marked with the names of the hours (Pl. xvi, fig. 5). This was placed so as to point eastwards in the morning and set horizontally by means of a plumb line suspended against a line scored on the end-block at right angles to the long arm (Fig. 6). The shadow of the edge of the end-block was intercepted on the horizontal portion of the rod. At midday, the rod was reversed so as to point westwards. The hour markings are spaced at multiples of the fifth-hour mark from the meridional line, namely, the edge of the end-



Fig. 6

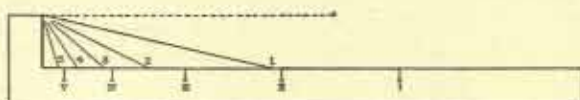


Fig. 7

block. The hour intervals were not of equal length and the errors are shown in Fig. 7, the apparent time being indicated by roman and the true time by arabic numerals, calculated approximately for the latitude of 30° N. at the equinox. In Borchardt's reconstruction of this type a cross rod is placed on the end-block at right angles to the other rod; this seems unlikely. Pl. xvi, fig. 1 shows an inscribed end-block.

A similar sort of time-measuring device is still in use in Upper Egypt for indicating the durations of shifts of oxen and in connexion with irrigation time-allowances. The tops of two pegs a few inches above ground are connected by a short horizontal cord, and the "hours" are marked by nails or pegs. One of these on a board, from Kûs, is in the Science Museum, South Kensington and is reproduced in Pl. xviii, fig. 1. To this day an Egyptian peasant will leave his buffalo in order to go and look at such a time-teller to find out whether it is time to leave off work, regardless of the time lost in so doing¹.

The shadow lengths in the early morning and late afternoon were inconveniently long, and the advantage of tilting the horizontal scale so as to reduce its effective length was realized at a later period, when we find the "inclined-plane" type of shadow clock, of which a reconstruction is shown in Fig. 8.

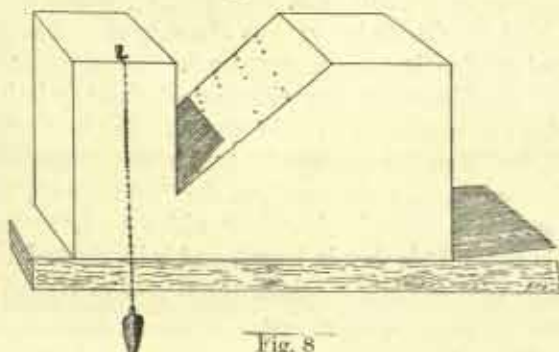


Fig. 8

¹ See Job 7. 2. "The servant earnestly desireth the shadow."

One dating from the Ptolemaic period about 320 B.C. is provided with scales for the various months, and the names of the months are inscribed against the scales (Pl. xvii, fig. 3)¹. Fig. 9 shows diagrammatically the scales of this specimen² (a) and those of one from El-Ḳanṭarah³ (b), dotted lines being drawn through the theoretical positions of the markings, calculated approximately for the latitude 30° N.

In the Egyptological Museum of University College, London, there is a part of a little shadow clock of the inclined-plane type, made from black steatite, with inscriptions (Pl. xvii, fig. 4)⁴. The side block, the shadow of whose upper edge fell on the sloping surface, is unfortunately broken off. There are six graduation lines, slanted to allow for variations in the lengths of days in spring and autumn. In all probability there was originally an inlaid strip, provided with scales for the equinoctial months, in the central groove. Provision was also made for a plumb-line suspension for setting the clock upright.

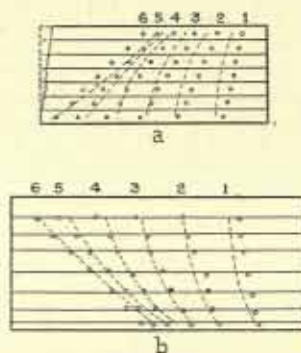


Fig. 9

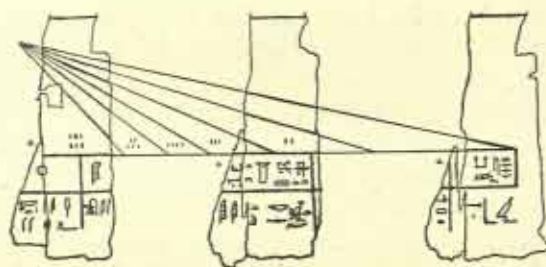


Fig. 10. (After Griffith-Petrie)

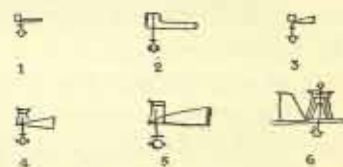


Fig. 11

A fragment of papyrus from Tanis (A.D. 100), Fig. 10, shows a method of construction for such a clock. It is of particular interest as showing that a construction was actually used for the purpose of graduating the instrument⁵.

A number of hieroglyphic signs are pictures of these primitive forms of shadow clocks, Fig. 11. All date from the Ptolemaic period. Borchardt has pointed out that a sign similar to the "finger" sign is occasionally used, and appears to be a conventionalised form of the cleft stick used in star observations described above, Pl. xvi, fig. 4.

In the Cairo Museum is a model in limestone which seems to incorporate three kinds of shadow clock⁶. It is about 15 inches in length and is illustrated in Pl. xviii, figs. 2, 3, 4. The shadow of one edge of the little block in the centre of the upper surface is cast on

¹ Petrie, *Ancient Weights and Measures*, 45, Pl. xxvi.

² Legrain, *Collection Hoffmann*, 147.

³ Griffith-Petrie, *Two Hieroglyphic Papyri from Tanis*, Pl. 15.

⁴ Clédat, in *Rec. trav.*, 1915, 37.

⁵ Petrie, *ibid.*

⁶ Borchardt, *Altæg. Zeitmessung*, 52.



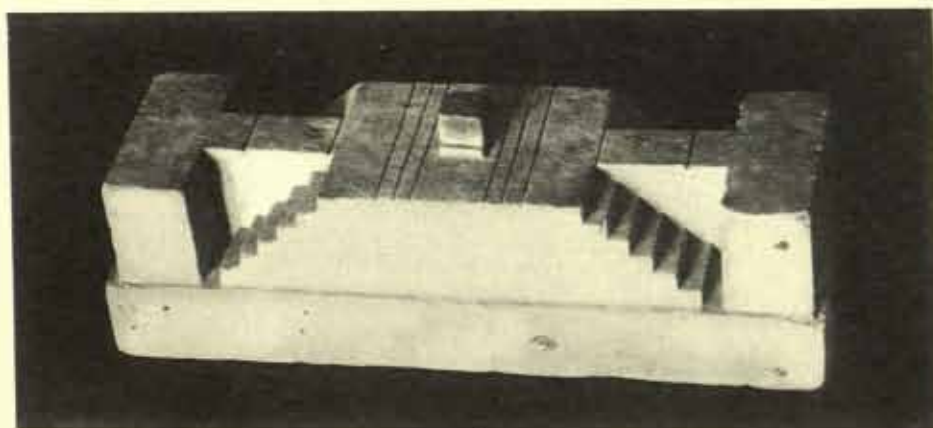
1



2



3



4

1. Time-measuring device from Kûş. Science Mus., S. Kens. Scale $\frac{1}{10}$.
2, 3 & 4. Model shadow clock. Cairo Mus. 33401. Scale $\frac{1}{4}$.

the upper surface, which is graduated by lines as shown in Fig. 12. The true positions of the markings calculated for the equinox in latitude 30° N., as well as the formation of the shadows thrown by other edges on the steps and the inclined plane, are also indicated. The latter are not graduated.

Time by Shadow Direction.

In the sundial, the direction and not the length of the shadow is taken into account, and this shows a distinct advance in thought and method. If the dial is properly set, an equally divided angular scale can be used, a great advantage over the unequally divided scale necessary when the shadow length alone is considered.

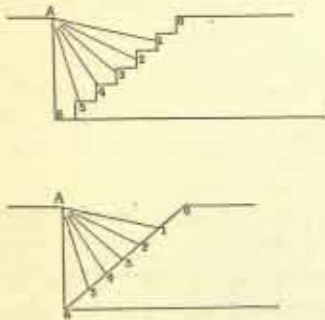
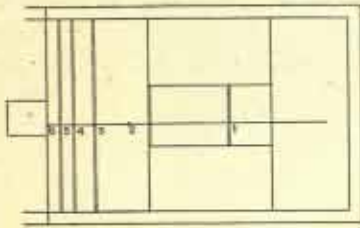


Fig. 12

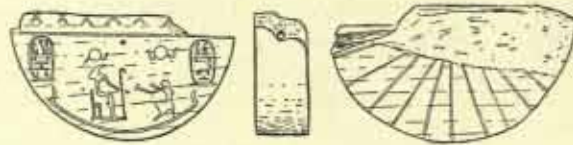


Fig. 13. (After Macalister)

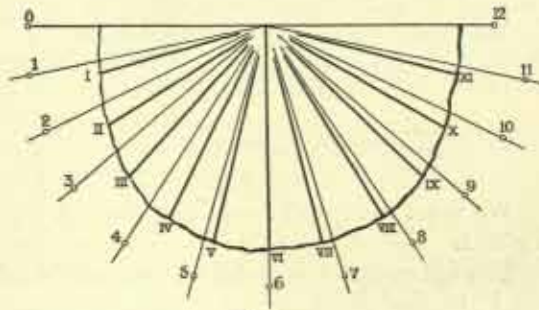


Fig. 14

The oldest specimen known (Fig. 13) dates from the 13th century B.C. It was found at Gezer in Palestine¹, and has been fully described by Borchardt². It consists of a nearly semicircular piece of ivory about $2\frac{1}{4}$ inches across. On one side is a "divine ship" with a scene of the worshipping of Thoth and the cartouches of Merenptah in incised lines filled in with green pigment. On the other side are the dial markings, a series of radiating lines at intervals of approximately 15 degrees. There is a hole in which a style or gnomon was originally fitted, and the upper edge is bored throughout its length to take a suspension cord.

A later example of a dial found at Luxor (Pl. xvii, fig. 2) is now in the Berlin Museum³. It dates, probably, from the Graeco-Roman period, and is designed for hanging on a wall or pillar. The hole for the gnomon remains, and above it is a square recess originally containing a housing for a plumb-line suspension serving to set the dial. The marking is not particularly accurate, as will be seen from the diagram, Fig. 14, in which the longer lines indicate the true directions, and the shorter ones correspond to the lines incised on the dial. Midday is 6 hours.

¹ Stewart Macalister, *Excavations at Gezer*, I, 15; II, 331.

² Borchardt, *op. cit.*, 48.

³ Borchardt, *A.Z.*, XLIX, 66.

These are early examples from Egypt of sundials, the use of which spread rapidly over the whole of Western Europe. One found in the Stabian Baths at Pompeii is a particularly interesting specimen (Fig. 15). The inscription is in the Oscan script and reads: "Maras, son of Maras the Quaestor, built (this sundial) by order of the Corporation, out of the fine-money¹." No doubt, it was some satisfaction to transgressors of the law to know that their fines were put to such useful purpose.

A portable dial from the Loire district gives the winter solstice (*bruma*) as the 8th day before the Kalends of January, i.e., Dec 23, and *solstitium*, the summer solstice, as the 8th day before the Kalends of July, i.e., June 22. The dates are now one day earlier².

Vitruvius gives full directions for constructing sundials and mentions several different forms in use in his day, which he says were invented by Berosus the Chaldaean (c. 250 B.C.) and by various Greeks.



Fig. 15. Sundial found at the Stabian Baths at Pompeii in 1854.
(After Singer and the Clarendon Press)

Water Clocks.

We must now turn to quite a distinct method of measuring time, based on the flow of water.

The oldest specimen of a water clock in existence dates from about 1300 B.C. It is a vessel of translucent alabaster shaped like a flower pot and stands about 14 inches high (Plates xix, xx); it was reconstructed from the fragments found at Karnak, for the Cairo Museum. The outside is decorated with coloured stone and fayence inlay work; and various scenes, stars and constellations are depicted in three registers. Other fragments of similar vessels are to be found in the museums of Europe³.

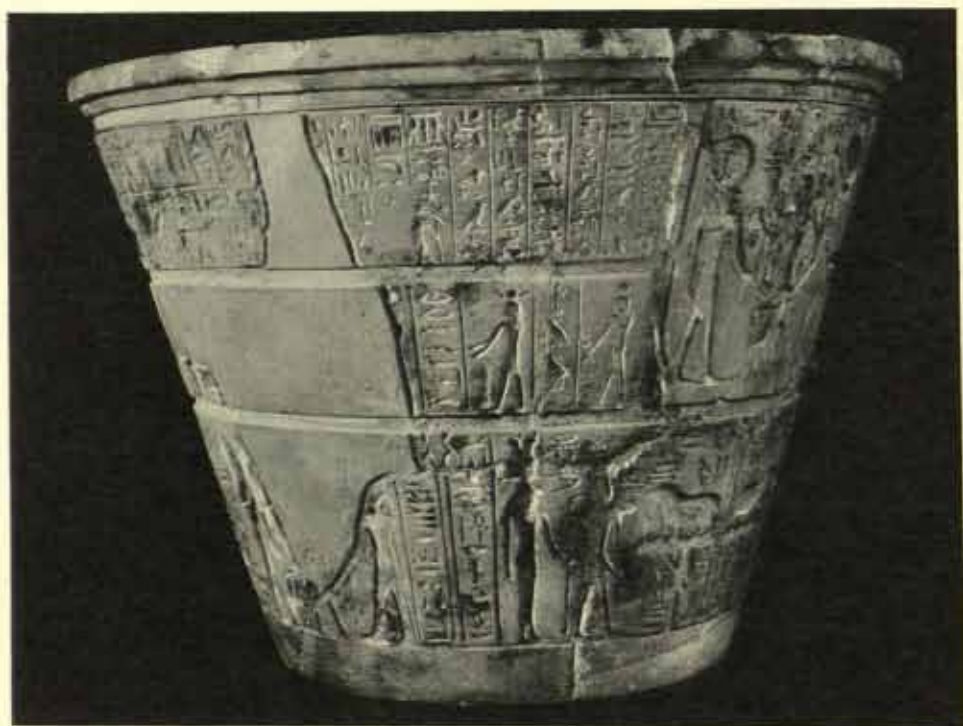
Water clocks such as these were used to determine the hour-intervals of the night for the temple-watches. An inscription on one fragment runs thus: "Every figure is in its hour...to fix the hours of the night, if the decan stars are not visible; so that, in this way, the correct time (?) of the sacrifice will be observed." The temple attendants probably took turns in keeping watch during the night, and the clock enabled the hours of duty to be fairly apportioned, as they thought.

It will be clear that the length of the Egyptian hour, being the twelfth part of the night, varied according to the season of the year. It was shortest at midsummer, when the nights were shortest, and longest at midwinter. A scale for each month was provided on the inside surface of the vessel in the form of a row of small depressions extending from the full-line near the top towards the bottom (Pl. xxi, fig. 2). There is an interesting

¹ Charles Singer, *Science*, in *The Legacy of Rome*, ed. by Cyril Bailey, 315.

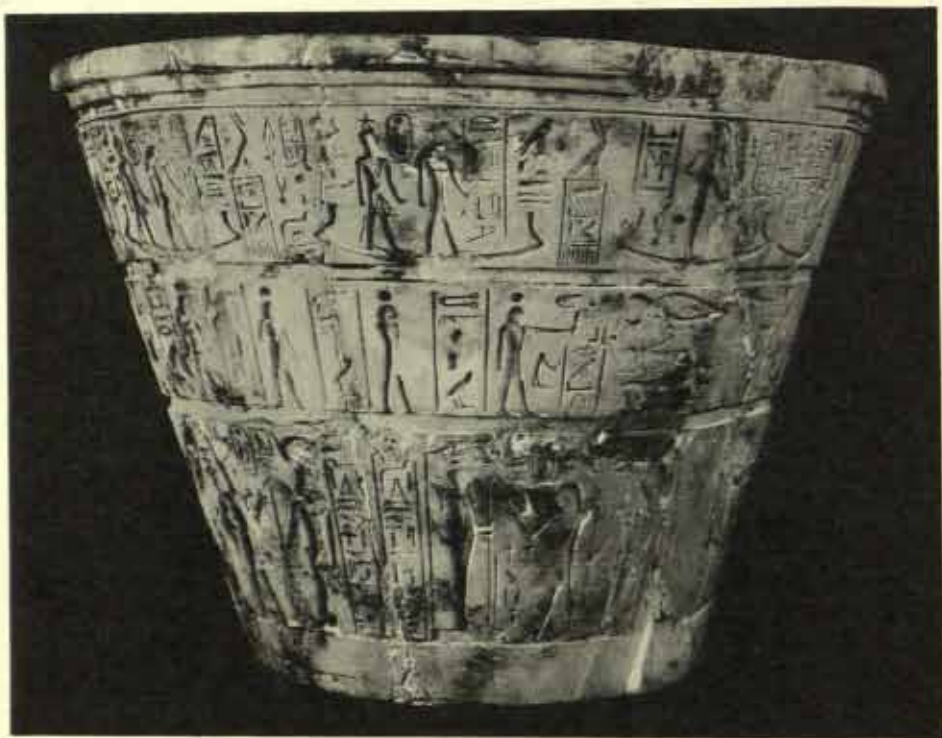
² *Op. cit.*, 316.

³ R. W. Sloley, *Ancient Clepsydrae*, in *Ancient Egypt*, 1924, 44, where further details and references to the following may be found.



Clepsydra from Karnak. *Scale* $\frac{1}{4}$.

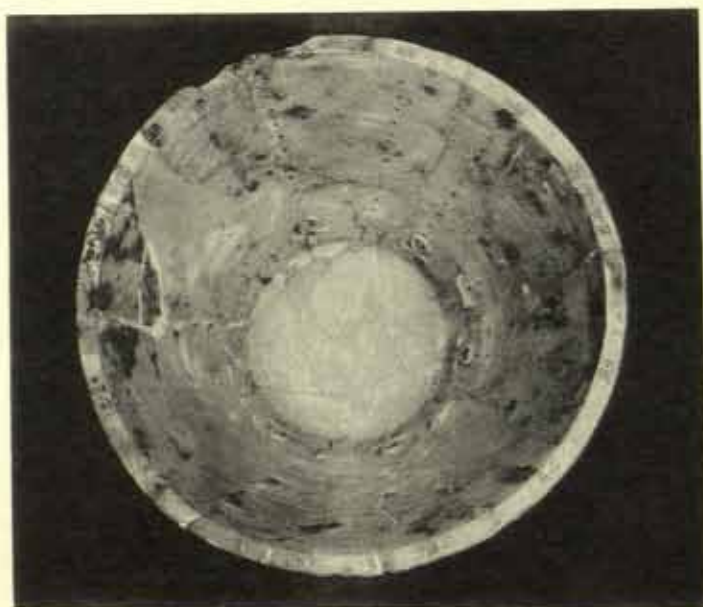




Clepsydra from Karnak. *Scale 1/2.*

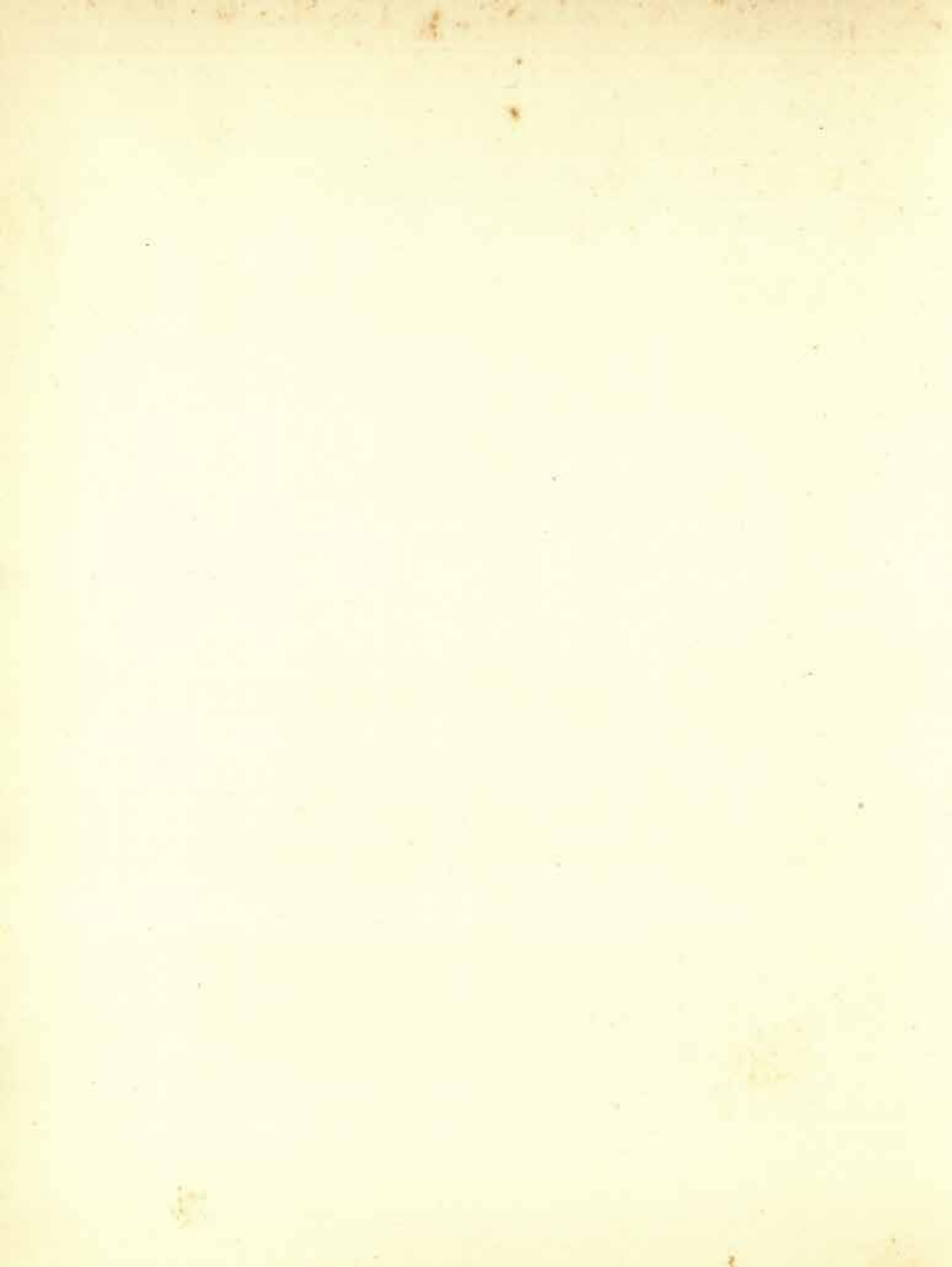


1



2

1. Model of water clock. Cairo Mus. 29895. *Scale 1/2*.
2. Interior of Karnak clepsydra.



account of a vessel of this description in a tomb-inscription at Shêkh 'Abd el-Kurnah of an official named Amenemhet, who lived in the time of the Eighteenth-Dynasty Pharaohs Amosis I, Amenophis I and Tuthmosis I. If his work is original, this inscription is of interest as the earliest known record of physical observations. He gives the relation between the lengths of the summer and winter nights and he says that he made "this splendid instrument" in honour of the King.

In use, such a water clock was first filled to the full-line and the water was allowed to flow out gradually from a small aperture near the bottom. At the end of the first hour the water level would have fallen to the first mark of the scale corresponding to the month in question, and so on for succeeding hours to the last mark. Now among the *Oxyrhynchus papyri* is part of a leaf of an ancient book containing descriptions of astronomical instruments, and there we find an account of how the calculations for water

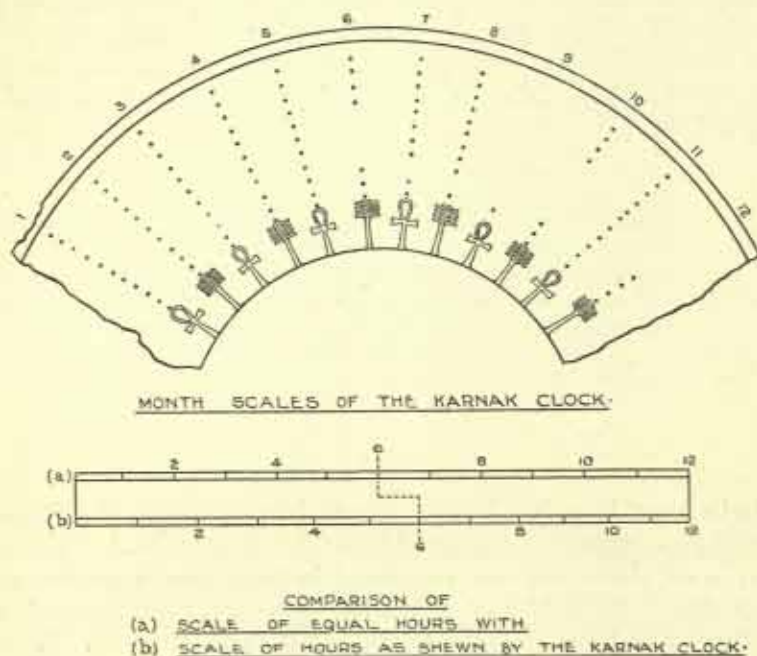


Fig. 16

clocks were made. The dimensions given correspond closely to those of all vessels of which fragments have been found and for which measurements can be obtained.

It seems quite clear that the Ancient Egyptians believed that the level of the water sank equal heights in equal times. This is not exactly true for vessels of the shape used. If the angle of slope had been slightly less (103° instead of about 110°) it would have been a closer approximation to the required form of a curved surface.

As the vessel gradually emptied, the flow diminished owing to reduced pressure, but this diminishing flow was not exactly counterbalanced by the decreasing amounts of water between successive marks. Thus, when the vessel was first filled, the water flowed out in a steady stream, but towards the twelfth hour the flow would be reduced to a mere trickle. Thus the hours indicated were not of equal length like those shown by our modern clocks. Although the hours were nearly correct at the middle of the scale, the earlier were too long and the later too short (Fig. 16). The Egyptians did not know this. They

had no means of determining whether their hours were equal or not. To divide a space of time equally is a very difficult problem without regularly moving mechanism or some precise means of observing the movements of the stars.

Another form of water clock came into use in later times. This took the form of a cylinder. Water was allowed to drip into the cylinder from a reservoir, and, as the level rose inside, the height was read on a scale of markings, or more easily by means of a float arrangement indicating the hours on a scale outside. If the reservoir were maintained full of water, errors due to the gradually diminishing pressure would be avoided. One such clock was found at Edfu and dates from about A.D. 100 (Pl. xxii, figs. 1 and 2). Round the inside run twelve uneven curves divided into twelve parts for the months by vertical lines (Fig. 17 and Pl. xxii, fig. 2). The vessel is about 12 inches in height and over the aperture at the base is a seated figure of a dog-headed ape. The aperture was closed after the vessel had been filled with water to the topmost mark, and opened after the lapse of 12 hours, when it was necessary to empty the vessel.

Models of these clocks were bestowed as votive offerings and may be seen in various museums. A specimen from Cairo has a little flight of steps and stands about $4\frac{1}{2}$ inches in height (Pl. xxi, fig. 1).

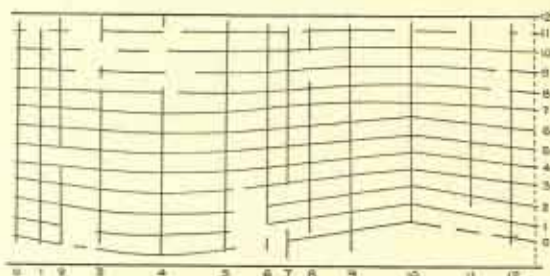


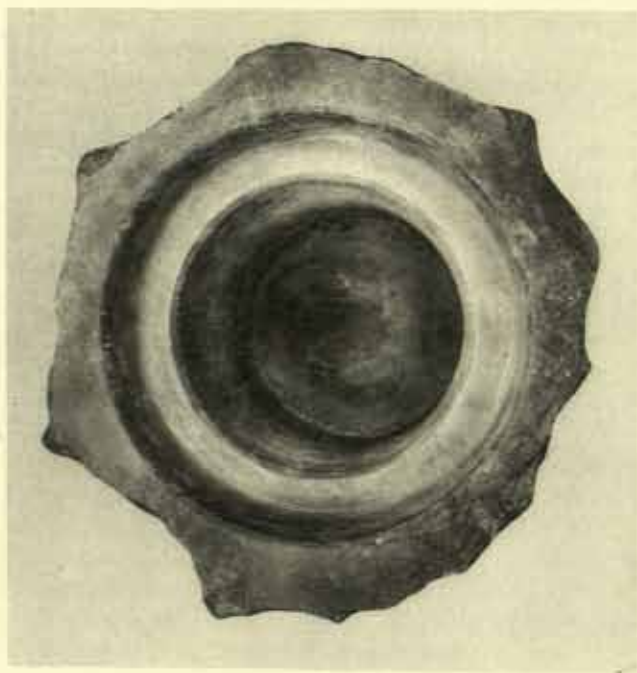
Fig. 17

Water clocks were introduced from Egypt into Europe. The Greeks called the instrument *κλεψύδρα* (whence the Latin *clepsydra*), "Water-thief." The clocks were used by day as well as by night, and one was placed in the market place in every important town. We can picture the nobleman of the day sending his servant to the market place to learn the time, regardless of time lost in dawdling on the way. An attendant was placed on guard by the clock, and his duty was to fill it at the proper intervals and to protect it from mischievously disposed persons.

In the Roman law courts, water clocks were regularly used, as Favorinus tells us, "to prevent babblings, that such as spoke ought to be brief in their speeches." Hence the Latin phrases *aquam dare*, literally "to give water," i.e., to give an advocate speaking-time; *aquam perdere*, "to lose water," i.e., to waste time; "You are trespassing on my water," meaning "You are wasting my time." Augustine speaks of drops of time, an obvious reference to a water clock. Martial refers to a tiresome speaker, who moistened his lips from time to time from a cup of water. The poet remarks humorously that it would be as great a relief to the speaker as to his audience if he were to drink from the water clock. There is a story of a shady Roman lawyer who deliberately muddled the water in order to check the flow and thus gain more time for his speech. The Romans used a form of *clepsydra* in which a roaring sound was produced at every hour by the release of air compressed by water. Lucian mentions this as one of the attractions and conveniences of certain newly constructed baths.



1



2

Clepsydra from Edfu. Cairo Museum.

1. Exterior. 2. Interior.

Scale $\frac{1}{4}$.

Vitruvius describes a water clock which seems to have incorporated a wheel-and-ratchet mechanism. Water from a tank drips at a uniform rate through a small pipe into a tank in which is a float. A shaft attached to the float is provided with teeth which engage in those of a cog wheel fixed to a pointer moving over a dial. Vitruvius states that he got the idea from an ingenious barber of Alexandria, named Ctesibius, who flourished about 135 B.C. Ctesibius is said to have constructed a clepsydra (Fig. 18¹) in which a little figure with a wand is mounted on the float (D). As the float rises with the water the tip of the wand is brought opposite to a scale on a revolving drum (F) on which the hours are marked by slanting lines corresponding to the varying lengths of the day at different times of the year. A syphon (S) empties the tank ready for the next day, and in so doing turns a cog wheel (H) provided with 365 teeth through a distance equal to the gap between two teeth. Thus the drum is turned and brings the appropriate scale for the day opposite to the end of the wand-pointer.

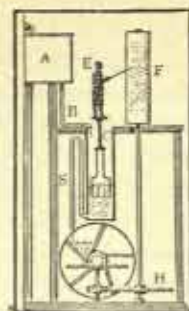


Fig. 18

Julius Caesar used water clocks to regulate the night watches for his troops stationed in Britain and he noted that the summer nights were shorter than in Rome.

A water clock was regarded as a princely gift as late as the 8th century A.D. Among other presents, which included treasures of eastern silks and a favourite elephant, Harun ar Rashid, of Arabian Nights fame, presented a very costly and elaborate specimen to Charlemagne. Besides telling the time, it gave the day of the month, the age of the moon, the zodiacal signs and other interesting information; it was regarded at the time as a very great curiosity. At the hour-marks on the dial were little doors, which flew open at the hour and allowed the appropriate number of balls to fall out one by one into a resounding bowl, thus striking the hour. The time could be ascertained by noting the number of doors that were open, or at the hour by listening to the number of balls striking the bowl. There is a representation of this clock on a piece of old Sèvres china. Clocks like these provided great scope for the ingenious craftsman and many of them were wonderful specimens of the jeweller's art.

An interesting example of a 17th-century clepsydra is now in the Science Museum, South Kensington, and keeps very good time. A similar specimen is illustrated in Fig. 19¹. To the cross-bar at the top are attached two cords bearing a drum on a horizontal axis. The drum contains seven cells, each pierced by a small hole near the bottom. Water is placed in the drum, which is then pulled up to the top of the frame, a distance of about three feet. The drum tends to fall, but the motion is partly counteracted by the water dripping slowly from one compartment to the next. The hours are indicated by the position of the axis of the drum against a scale marked on the sides of the frame.

The Pacific islanders use a floating coconut shell with a small hole at the bottom as a clock for timing their voyages. The water gradually enters through the hole, and a rough idea of the passage of time is obtained.

In India the Brahmans divide the day into 24 intervals of 24 minutes each, and measure them by means of a copper bowl floating on water, which slowly enters through a small hole at the bottom. The size of the hole was adjusted so that the bowl filled and sank after 24 minutes had elapsed. The attendant

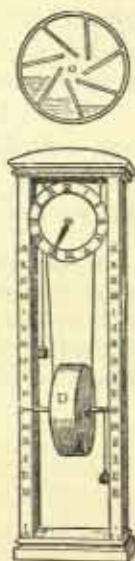


Fig. 19

¹ After *The Gresham Encyclopedia*, III, 136.

then struck the hour, rescued the bowl and refloats it for the next period. An Algerian example of this type is in the Science Museum, South Kensington. It takes about 15 minutes to sink, and was used for timing the periods for which the agriculturalist was entitled to a supply of water for irrigation.

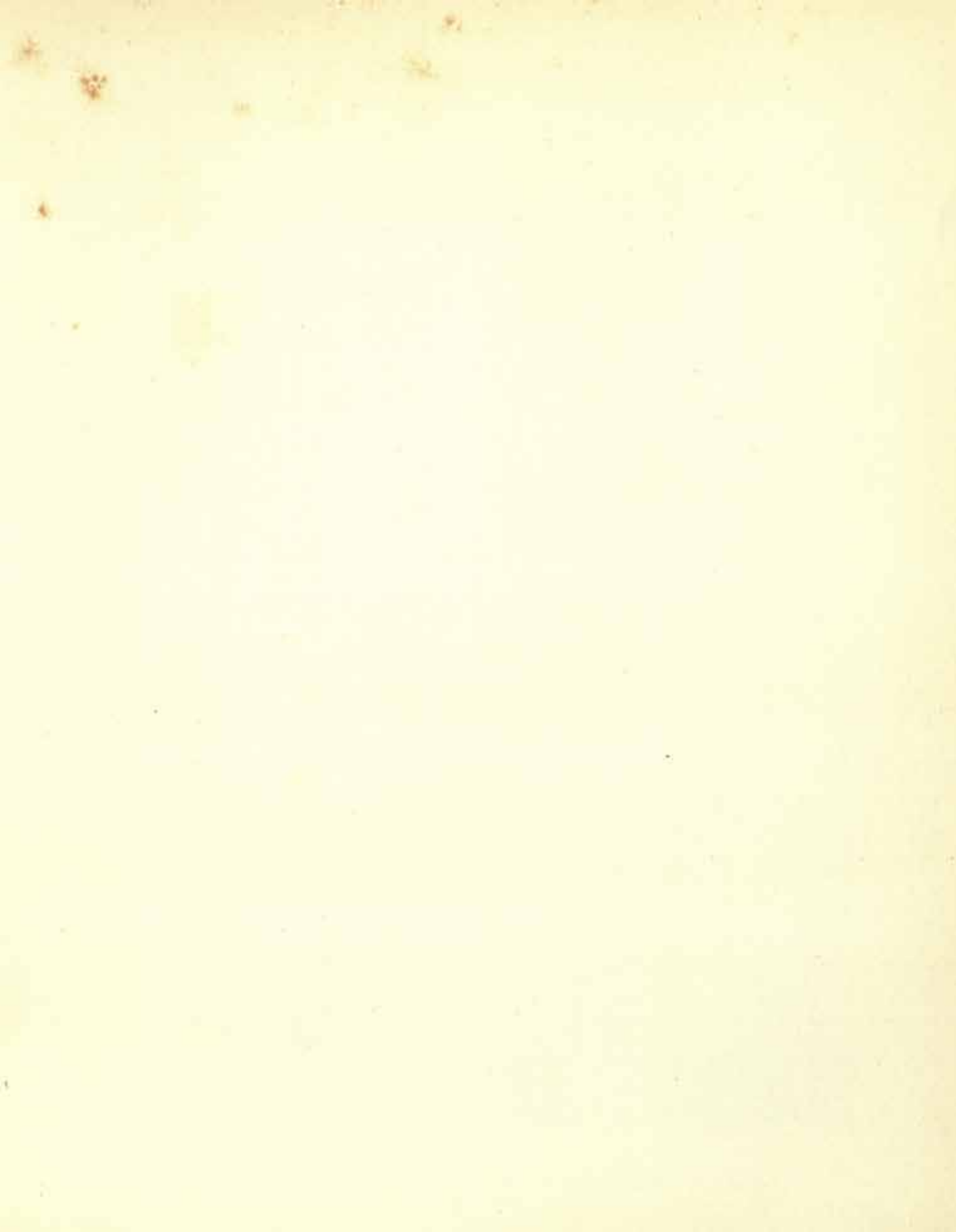
The word "clock" is usually employed to denote any mechanical device connected with the measurement of time, and, in what has been said, it has been used to avoid the rather clumsy word "clepsydra" or a lengthy phrase. It must be remembered, however, that the word "clock" simply means bell, like the French *cloche* or the German *Glocke*, and did not come into use until the introduction of sounding or striking clocks.

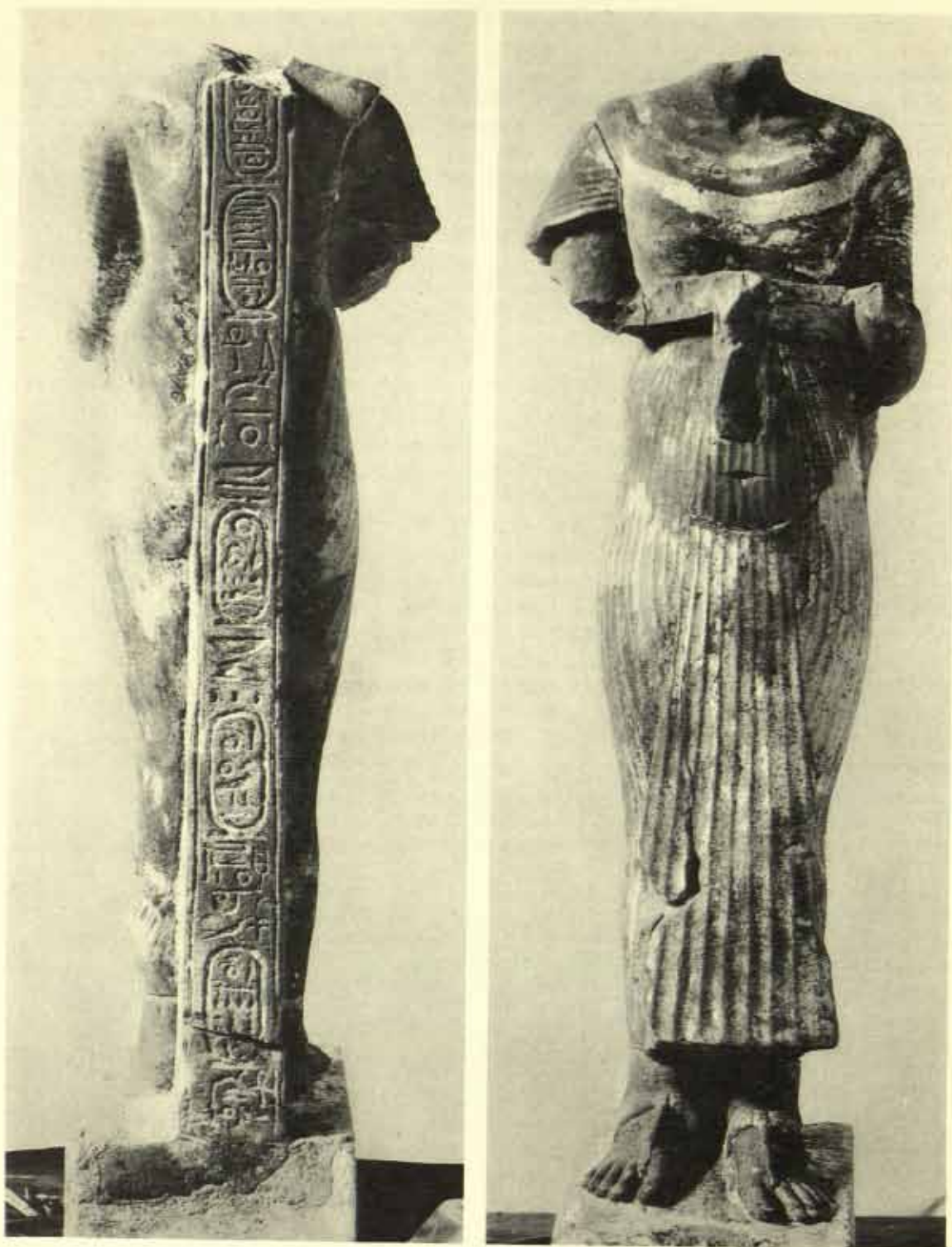
Water is not the only substance which can be utilised for "flow" methods of measuring time. The flow of melting wax is made use of in various forms of candle clocks, said to have been invented by King Alfred. In his novel *The Betrothed* Sir Walter Scott describes "a waxen torch which was graduated for the purpose of marking the passing time. Brazen balls were suspended by threads from the torch, the spaces between them being calculated to occupy a certain time in burning. When the flame reached the thread, and the balls fell, each in succession, into a brazen basin placed for its reception, the office of a modern clock was in some degree discharged." Any finely divided solid, such as sand, can be used for a similar purpose, and the "sand glass" is well known.

Such are the more primitive methods of measuring time. In modern days the introduction of the pendulum and the spring-controlled balance-wheel have completely ousted the earlier methods. The pendulum was not known until Galileo, in A.D. 1590, made his famous observations of the swinging lamp in the cathedral of Pisa. As a medical student he was specially interested in pulse beats. He timed the swings with his pulse and, struck with a new idea, hurried home to test his observations by means of a simple pendulum. He confirmed his belief that the pendulum took the same time to swing to and fro whatever the amplitude, and constructed a *pulsilogia*, for timing pulse beats—a little instrument which became very popular among the medical men of his day. The balance-wheel constrained to swing to and fro in equal times by a spring was not developed until A.D. 1700.

These two inventions provided means of constructing regularly moving mechanism and served as a basis for the attainment of the astonishing accuracy of present day clocks and watches. In ancient times no such accuracy was possible or necessary, and the methods employed were sufficiently accurate for the needs of everyday life¹.

¹ For permission to reproduce illustrations the writer is indebted to the following: The Director, Cairo Museum (Pl. xviii, 2, 3 and 4; xix, xx, xxi and xxii); The Director, Berlin Museum (Pl. xvi and xvii, 2); The Director, Science Museum, South Kensington (Pl. xvii, 1 and xviii, 1); Professor Sir Flinders Petrie (Pl. xvii, 3 and 4; Figs. 10, 16 and 17); The Palestine Exploration Fund (Fig. 13); Dr. Charles Singer and the Clarendon Press (Fig. 15); The Gresham Publishing Co. (Figs. 18 and 19).





Statue of Akhenaten in painted sandstone, from Tell el-'Amarnah.

Scale c. $\frac{1}{4}$.

EXCAVATIONS AT TELL EL-'AMARNAH, 1923-4

A. STATUARY

By F. LL. GRIFFITH

With Plates xxiii-xxvii.

The results of the Society's excavations carried on at Tell el-'Amarnah in January and February of 1924 have not yet been reported except in a general description printed in *Journal*, x, 299-305, supplemented by a brief article on a fine stela from the house of Pnēhesi published *op. cit.*, xii, 1-2. A memoir however was prepared shortly after our return to England, and it is proposed now with the consent of the Editor and of the Committee to print this memoir, chapter by chapter, in the *Journal*, each chapter describing the finds belonging to a particular class of objects.

The hope expressed in *Journal*, x, 304 that an expert would piece together the results of Petrie's excavation, the German expedition and our own, with an accurate map of the ancient city with all the houses numbered and catalogued was disappointed, first by the death of Mr. Newton and secondly by the resignation of Dr. Frankfort, but still burns on. A reference to the report of an excavation, *op. cit.*, x, 301-303 and to the plan, Pl. xxxvi, may be useful to readers of the following catalogue of finds. The expedition's southern house (L. 50, 9) is seen near the south end of the plan, west of the south end of High Priest Street. The house of Pnēhesi (R. 44. 2), the other chief source of sculpture, is the more westerly of the pair of large houses marked at the north end of the shaded portion.

Pair of headless statues of Akhenaten and Nofretēte, of Silsilah sandstone, found on 4th February in rubbish 50 cm. above floor in the north-east corner of small chamber at west end of L. 50, 12, very near to the shrine-platform of L. 50, 9 (the expedition's southern house), from which they had probably been thrown out (Pls. xxiii-xxiv).

Each was represented standing with feet together, on a plain rectangular plinth, with inscribed pilaster at the back; the arms are broken, and between them are remains of a plain thin slab, perhaps representing a papyrus or tablet, which was held against the chest outwards, but tilted upwards, with an inscribed support for it below against the stomach. The present height of the king's statue to the throat is 77 cm.¹, of the plinth 13 cm.; the present height of the queen's statue (which has lost the plinth and feet) from the top of the pilaster behind the neck to above the ankles is 70 cm. The flesh of each is coloured red and the garments white, showing the flesh-colour through. Each has lost the right arm from above the elbow and the left arm from above the wrist. The surface of the tablet was plain, coloured white; a fragment of the front edge of the support in the queen's statue shows remains of an inscription, but the edges of the tablet are all broken away. The hands cannot have supported the tablet from beneath,

¹ Measurements are in centimetres throughout this article.

but may have held it at the edges like a roll of papyrus; it was evidently not a table of offerings, which would have been held out horizontally.

The statue of Akhenaten, see Pl. xxiii and profile in *Journal*, x, Pl. xxxv, now in the Ashmolean Museum, has breasts, stomach and thighs very full, navel strongly marked, prolonged horizontally; flesh red; transparent pleated dress over shoulders, body and legs, with fall to near ankles, white, showing the red flesh through, and leaving neck, breast, lower arms and feet bare. The dress is gathered together over the right shoulder, where it reaches only to the middle of the upper arm. The fringed edge of this garment is on the left side, crossing the elbow and passing down the leg. The end of a fastening seems to be painted in black outline on the right side of the stomach below the tablet. On the right side there is an appearance of an opaque white loin cloth, the lower edge of which is carried nearly straight across the thigh, the upper edge curving upwards; but this cannot be distinguished on the back and left side, and it may all be due to loss of colour on the cement patches. On the chest, below the collar-bone, are a series of collars in dark blue, pale blue and red, rather indistinct, the broadest consisting of blue lotus-petals that pass round to the back leaving a space bare between the shoulder-blades. The feet and toes are shaped naturally and finely. The sandals themselves are hardly marked; the sandal strap between the toes is sculptured and coloured red, the thick pad over the instep white.

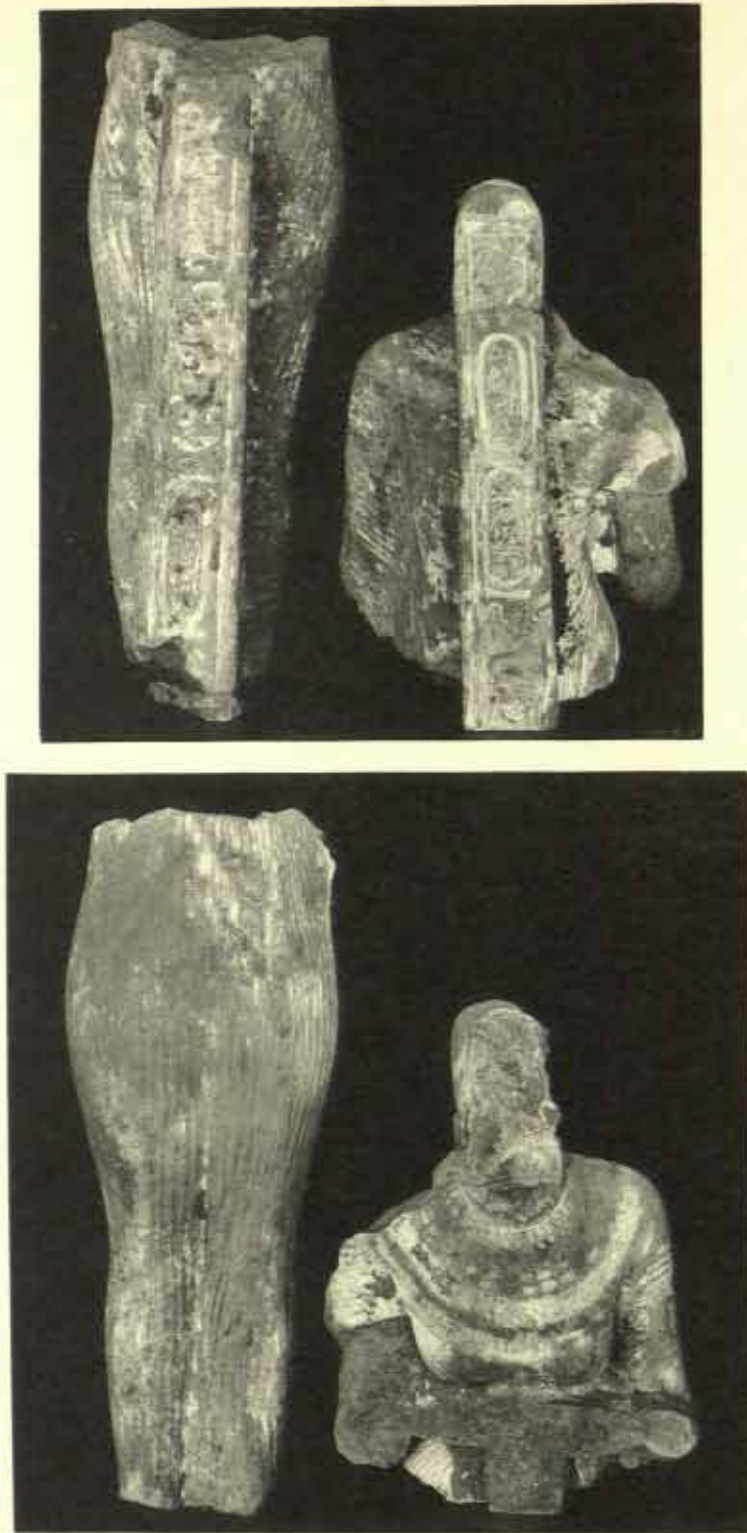
The inscription on the back pilaster has lost a few characters at the top; it gives the names of the Aten in the later form, of the king and of the queen: "[Lives the Father (Rê) ruler of the two horizons, rejoicing in the Horizon] (in his name of father of Rê who comes (back) as Aten), given life eternally and for ever. The lord of the two lands (Beauty of the forms of Rê, the sole one of Rê), lord of diadems (Akhenaten), long in his duration. The chief royal wife (Beauty of the beauties of Aten, Nofret-ête), living eternally and for ever."

There has been a large amount of mending of the stone with cement on each side; parts of it lie in protected positions, so that it hardly seems intended to repair wanton injury to the statue, but rather to mend imperfect patches of the original stone or to fill out places where too much had been cut away by the sculptor. There is a large patch on the left thigh from above the knee, against the fall of the dress and including the fringe, and upwards taking in the whole of the projecting portion of the fringe where it hangs from the elbow. There is also a small patch on the outside angle of the left shoulder, travelling downwards behind it almost to the end of the shoulder-blade near the pilaster. On the right side there is a large addition in cement extending from above the knee upwards behind the arm to the armpit. The lines of sculpture are carried over these patches, which in some places join smoothly to the stone surfaces, in others project slightly above them, suggesting that the whole figure may have been re-surfaced.

The narrow rectangular sandstone base has been set in a rectangular block of oolitic limestone with a free use of cement; this block is plain, rather roughly sawn and has both back corners mended with cement.

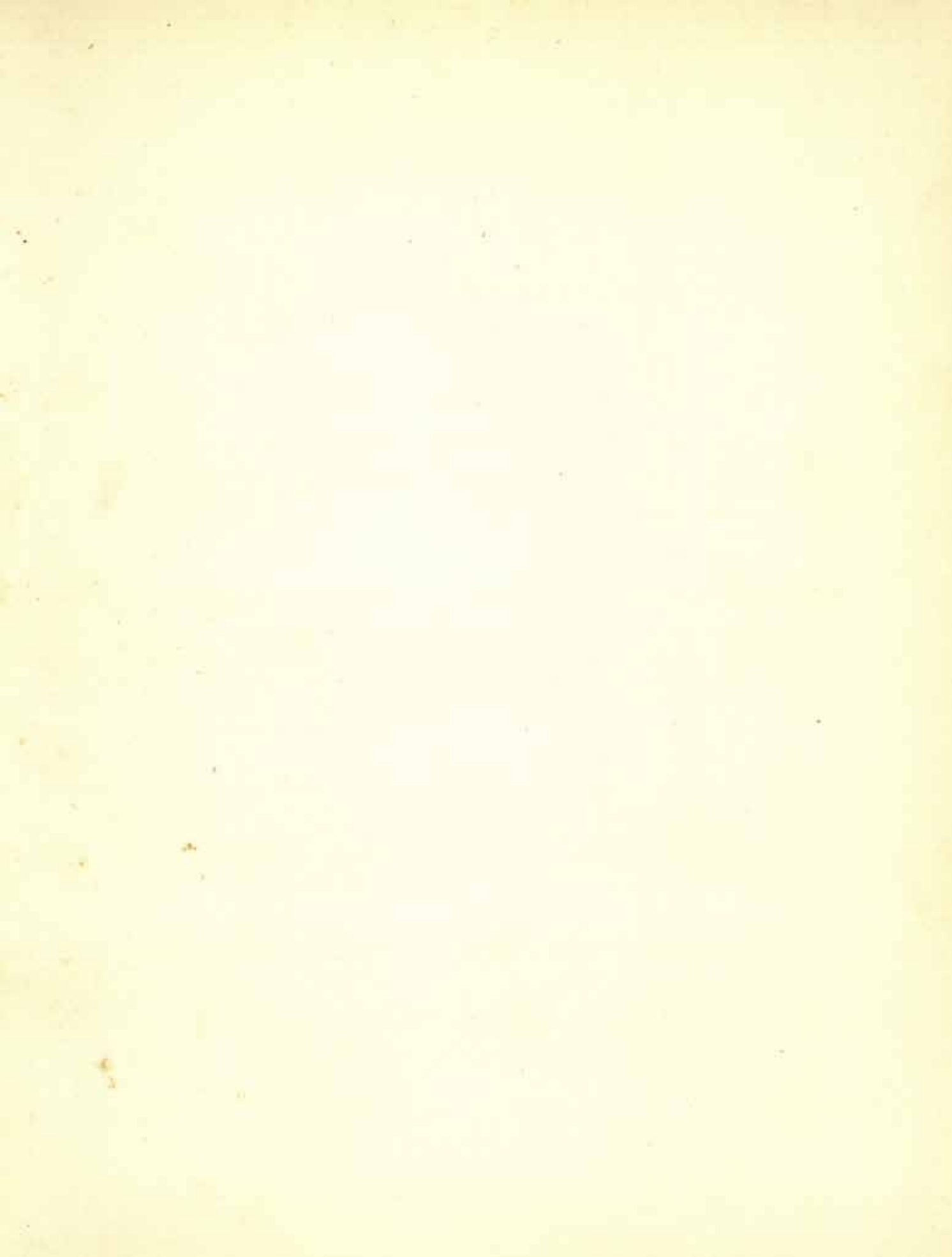
The statue was found in two principal fragments, the base with the feet to the ankles being separated from the torso. Another fragment comprised the remains of the right arm and shoulder. A small fragment fitted to the fall of the garment in front and two others to the tablet or papyrus.

The statue of *Nofretête* (Pls. xxiv-xxv, now in the British Museum) has lost head, feet



Statue of Nofretète in painted sandstone, from Tell el-'Amarnah.

Scale c. 1/2.





Statue of Nofretete in painted sandstone, from Tell el-'Amarnah.
To show details of construction.

above ankles and base, most of the tablet with the right lower arm and the left hand. The flesh is red; a pleated dress, without fall, white showing red flesh through, covers the shoulders, body and legs, leaving neck, breast, most of right arm and left arm from elbow bare. The edge of the cloak is shown as a plain band (not fringed) falling from elbow to ankles on the left side. Down the front of the stomach are two girdle ends continued along the front of each leg to below the middle of the shin and widening evenly downwards. The garment, as in the king's statue, is gathered up on the right shoulder and reaches only to the middle of the upper arm; unlike the king's statue, the navel is round. Bead necklaces and collars cover the chest and shoulders and reach the back pilaster. The uppermost on the collar-bone appears to have consisted of boat beads with pendant petals in the following order repeated: red, dark blue, light blue, dark blue; below this in succession are a string of broad red petals, two strings of barrel (?) beads, the colours as before, and a necklace of blue lotus-petals followed by ill-defined red and blue strings ending above the bare breasts. Height 69.5 cm.

The inscription on the back pilaster is complete. Below the symbol of the sky the names of the Aten are written as on the king's statue and are followed immediately by the description and name of the queen without mention of the king: "The principal royal wife, mistress of the palace, great of love in the House of Aten, mistress of the two lands (Beauty of the beauties of Aten, Nofret-ête), living."

The base of the support to the tablet remains, showing the hieroglyphs $\begin{smallmatrix} \text{f} \\ \text{c} \end{smallmatrix}$ between parallel lines incised and coloured blue.

The head, back of the neck and top of the pilaster are in a separate piece of stone; this slides into an undercut groove, see Pl. xxv; perhaps this was done from the right before the shoulder was completed in cement; but the appearance here is that of a break, not the smooth grooving for the insertion of the head, which can be, and probably was, effected from the left side. There is a patch of cement on the bulge of the left thigh continued up the projection of the garment where it falls from the elbow, over the whole of the elbow to the middle of the lower arm, and along the upper arm to the back at the armpit. There is also a small patch on the under side of the left breast where the stone was absolutely protected from fracture, probably therefore due to a fault of the sculptor. The projection of the garment on the right shoulder is also in cement, as well as the top of the right shoulder already referred to.

This torso consists of two main fragments, having been broken across at the base of the support for the tablet; a small fragment of stone fitted the right shoulder and the stucco mend completing it was recovered. The inserted piece was found in place with coarse mending in stucco; the inscription upon this portion of the back pilaster was cut in a smooth coating of cement which retains both marking-out in red and blue filling. The queen's head had been broken off from the neck-piece and the break smoothed and covered with a very rough overlapping patch of plaster to receive the replaced head. The head was finally knocked off again and is now missing, but the patch of plaster remains.

Statues of the king and queen holding tablets vertically before them are seen at the boundary stelae A and S, Davies, *The Rock Tombs of El Amarna*, v, 23, Pls. xxxvi, xli, xliii; cf. the statuette of the king, *Mitteilungen der Deutschen Orient-Gesellschaft*, Nr. 50, 26. Tables of offerings are held by many statues found by Petrie and Carter, and by that illustrated in *Mitteilungen*, Nr. 50, Blatt 2. The action shown in the present case seems new.

Two fragments in hard white limestone or marble (Pl. xxvi, fig. 1), showing apparently a pleated dress with fringe at side and fall coloured red in front; lths. 6.8 and 6.0 cm.;

from M. 50, 32. A fragment in the same material of a blue *khepersh* head-dress, showing part of the side and top, lth. 6.5 cm., seems to be from the same statue. See Pl. xxvi, fig. 1.

The following fragments of limestone statues were found in or about the house of Pnhesi (R. 44. 2) and the temple attached to it. Unless otherwise stated they are from the central room of the temple.

539. Limestone head of king, high cheek bones, right cheek broken away together with mouth and chin, the nose and uraeus injured, flesh red, wearing smooth *khepersh* cap coloured blue; ht. 21.0. See Vol. x, Pl. xxxiv, 1. From north-east corner of chamber 14 of the house.

The remainder are of fair workmanship but show no fine detail.

Fragments of arms coloured red, all in Ph. 113¹, viz.:

(1) Wrist and beginning of hand, apparently of right arm.

(2) Most of forearm from elbow, apparently belonging to the last, with remains of plain tablet(?) or papyrus held by it.

(3) 546. Upper left(?) arm from shoulder with elbow and half of forearm, sharply bent, smaller than the last; below shoulder, faint cartouches of Aten, form doubtful; lth. 15 cm.

(1) and (2) must belong to the king's statue of a pair; (3) to the queen's statue.

Thirteen(?) fragments of arms and legs, similarly of two sizes, four of them yellow, the rest red.

Feet (1) 548 (numbered 538). See Pl. xxvi, figs. 2-3. Coloured red, wearing sandals, the sole of the sandal and ties shown, much damaged, on thin rectangular base (probably to be inserted in a large plinth). Base $31 \times 18 \times 5$ cm.; pilaster remains to height of 11 without trace of having been inscribed; width at base 10.5; lth. of foot 18.

(2) Remnant of smaller right foot coloured red, having almost exactly $\frac{1}{2}$ of the linear proportions of the last; lth. of fragment 9 cm.; Ph. 116, 120. Pl. xxvi, fig. 2.

Offering-table 545. Fragment (outer right-hand corner from the middle of the front), the upper surface engraved with offerings, supporting hand of the statue and central support traceable; edge inscribed:

"Lives the father (Rê ruler of the two horizons) (in his name as father of Rê who comes (back) as the Aten [] . . .] the Lord of the two lands."

It must have measured 24 cm. along the front, in thickness 3. Ph., top 128, edge 133.

Back pilasters of statues; see Pl. xxvii, fig. 1.

(1) 544. Fragment with lower half of first cartouche of Aten and all of second (later form); tapering upwards, ht. 17; width 6.4-7.2. Inscription had been filled with blue. Ph. 133.

(2) 536. Fragment with end of first cartouche of Aten and most of second (later form). Width at lower end 7.7; lth. 8. From Room 2 of house. Ph. 246.

(3) 543. Fragment with end of queen's cartouche and epithets, "living eternally and for ever" (probably broken off immediately above base) tapering upwards, width 8.0 to 9.0; ht. 14.5. Ph. 133.

(4) 542. Fragment showing end of epithet of king "great in his duration," reaching to level of base, a portion of which is preserved. Width of pilaster at base 10.0; total ht. 6.3 (border line coloured red on a fragment which apparently belongs). Ph. 133.

¹ Numbers under Ph. refer to the catalogue of photographs taken during the season 1923-4.



1



2



3

Fragments of statuary from Tell el-'Amarnah.
 Scale of fig. 1, $\frac{3}{4}$; the rest $\frac{1}{2}$.



1



2



3



4



5

Fragments of sculpture from Tell el-'Amarnah.

1. Pilasters from backs of statues. *Scale c. 1/4.*
- 2 & 3. Unfinished figure of a slave. *Scale c. 1/2.*
- 4 & 5. Inscribed statue-base. *Scale c. 1/4.*

541. Limestone unfinished figure of man standing on a rectangular base, bearing a circular object on his shoulders supported by both hands (see Pl. xxvii, figs. 2-3). It is only roughed out and has in the hollows many blotches of dark paint which hardly seem to be guides for the sculptor. Ht. 21.5, base 10.5 x 8; found in two pieces, having been broken at the knees, on the floor of the passage on the south side of the temple proper. Ph. 114, 115.

Corner of rectangular limestone block with polished top, apparently the base of a statue or group, 32 x 34, ht. 17; inscribed round the sides with two lines of large well-cut hieroglyphs (Pl. xxvii, figs. 4-5):

" Mistress of the whole land, the principal wife of the king, whom he loves, lady of the two lands, [Beauty of the beauties of] Aten [Nofret-ête] . . . "

" Daughter of the king of his body, whom he loves, Ankhesen[p]aten, born of the principal wife of the king [Beauty of the] beauti[es] of Aten, Nofr[et-ête]"

The queen's cartouche has been defaced in each line, only the name of the Aten being spared and a portion of the *nfr*-sign. In the second line *p* has been erased from the name of the princess and all the filiation words after her name, leaving only traces.

Brought from Et-Till and said to have been used in a house there. Probably therefore from the central royal palace.

It may be supposed that on this plinth had stood a group of the king and queen with their children, or at least of the queen and her daughter Ankhesenpaten, set up in the neighbourhood of the Great Palace.

The mistake in orthography at the end of the first line, where *r dr-f* should be read, is curious. The erasures, however, are of real importance in connexion with the erasure of the queen's name in favour of her daughter Merit-aten, both at the Maru-aten palace (*The City of Akhenaten*, I, 151 ff., especially 155) and at Mr. Newton's Northern Palace, as well as on the statue-base published by Sharpe. The present statue-base is the first monument on which the name of the third daughter has been observed accompanied by such an erasure.

Merit-aten was Akhenaten's eldest daughter; she married Smenkhkēr, who succeeded his father-in-law. Mekt-aten, the second daughter, died in the lifetime of the king and queen, who are associated in the mourning for her (Bouriant, *Monuments du Culte d'Atonou*, I, Pl. x). Ankhesenpaten, the third daughter, became Ankhesenamun, queen of Tutankhamūn; her name is written once as Ankhesenaten on the north altar of the boundary stela A at Tūnah, L., D., III, 91 c = Davies, v, Pl. xxxiv, which is probably the earliest written example known¹. It is curious that, evidently at a considerably later date, after the birth of three or four more children and the death or suppression of the queen, objection was taken to the article written before Aten to the extent of erasing it from a well-cut monument.

It might be suggested that as both Merit-aten and Ankhesenpaten became queens, the erasures of their mother's name took place as they successively advanced to her royal position; but since Merit-aten's name is substituted at Maru-aten distinctly as eldest daughter of the king and not as queen, such a supposition would be groundless. Mr. Davies has suggested that the queen went over to the enemy and set up an opposition court at Thebes (*Journal*, ix, 133) under the name Nefer-nefru-[Amūn?]; but was not this latter rather the fourth daughter Nefer-nefru-Aten tsheere, "the little

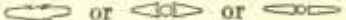
¹ Presumably it was the same on the south altar of B (see Davies, *op. cit.*, p. 24); but Mr. Davies can find no record of it in his notes.


Beauty of the beauties of Aten," assuming a regal style at some crisis? Alterations of the kind referred to above appear to be confined to monuments in the various palaces, where the royal family resided, but it would be worth while to look carefully whether they can be traced so far away as the boundary stelae and the sculptures in the tombs. On the Sharpe pedestal the filiation was allowed to remain by Merit-aten, while Ankhesenpaten destroyed not only the name of her mother but also the connecting phrase. One would like to know more precisely the occasions and circumstances of these unfilial acts.

THE EMBLEM OF MIN


By G. A. WAINWRIGHT


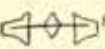
In a series of articles I have shown that Min was intimately related to Amun and was probably the original from whom the latter was derived; that Amun was Zeus; that as Zeus-Ammon he was closely connected with meteorites; that he had sacred omphaloi and also a sacred object that was probably a piece of a meteorite; and that it was in this object that Min particularly approximated to Amun. I have also shown that Horus was the other partner in this object and in the title *ki-mut-f*, and that he himself possessed an omphalos at his own city of Hierakonpolis; that the meteorite and omphalos were representatives the one of the other in ancient art and religion; and that both of them represented the weapon of the sky-god, which is otherwise often conceived as the thunderbolt¹.

The present article is a study of the sacred object of one of the partners in the *ki-mut-f* meteorite, that is to say the  of Min. It is so intimately connected with him that it not only is his fetish, but stands for his name either baldly² or in its later form³ and also is used by his nome of Panopolis (Akhmîm)

as its standard  ⁴. As is well known, Newberry has long ago sketched in the

outlines of the problem⁵, and the present enquiry co-ordinates this sketch with others of his studies. At the same time it both fills in the details and is a restatement of the case such as advances the subject, it is hoped, further along the same lines.

In the middle prehistoric period a symbol is very well known which varies to some extent in its details. It is  ⁶. At this same time it also took the

form  ⁷, and by about the time of Narmer it had become  ⁸. These are

¹ *Ann. Serv.*, xxviii, 175-189; *Journal*, xvi, 35-38; *op. cit.*, xvii, 151, 152.

² Petrie, *Royal Tombs*, II, Pl. xxii, 189; *Id.*, *Medum*, Pls. xvi, xx, xxi; Sethe, *Pyr.*, § 424, b, where Teti spells out the name *Mnw*, which Wenig writes with the "thunderbolt."

³ *E.g.*, Champ., *Mon. ég.*, col. ii ff.; Couyat and Montet, *Hammamat*, Pl. iv, ll. 2, 11, 21; Pl. xxi, 88; Pl. xlv, 238.


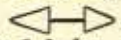

⁴ Examples are: Archaic Period, Quibell, *Hierakonpolis*, I, Pl. xxvi c, fig. 1; First Intermediate Period, Moret, *Comptes rendus de l'Acad. des Inscr. et Belles Lettres*, 1914, fig. facing p. 568, vertical column 4; Newberry, *Liverpool Annals*, iv, 108, 114, 115, 116, 118 (inscr. 12, 24, 25, 26, 27); Lange and Schäfer, *Grab- und Denksteine des mittleren Reichs*, No. 20024, ll. 2, 7, etc.; Lacau, *Sarc. ant. du nouvel empire*, I, 10, 11, coffin from Akhmîm no. 28004; New Kingdom, Caulfeild, *The Temple of the Kings at Abydos*, Pl. xviii, fig. 9.


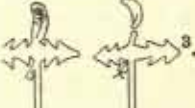
⁵ *Liverpool Annals*, III (1910), 50-52 and Pl. xix.

⁶ *Op. cit.*, III, Pl. xix, figs. 1-5; v, 138, 140.


⁷ Maelver and Mace, *El Amrah and Abydos*, Pl. viii, 2. The date is S.D. 58, Petrie, *Prehistoric Egypt*, *Corpus*, Pl. lvii, fig. 80 L.

⁸ Form kindly communicated by Mr. Brunton, who says that the palette on which it was scratched was found at Matmar (1930), and dates to S.D. 77-79. Narmer's date comes at the end of S.D. 78, while S.D. 79 is equivalent to the reigns of Aha and Zer (Petrie, *Tarkhan I and Memphis V*, 3).

clearly pointed weapons which are ready for offence either in front or behind, and the multiple points of some of the varieties perhaps indicate that they threaten not only in two but in many directions. Fortunately we happen to know that this Egyptian object represented the weapon wielded by the sky-god; in other words, any of the various flashes or rays of light that shoot down from the sky. The sign has survived into the Old Kingdom, when it is written , , or , and is used in the Pyramid Texts as the determinative for a word *hnbw*. On one occasion the word is used in connection with a "flame before the wind"¹ and on the other it doubtless means the sunbeams, for the *hnbw* here belong to the sun-god Rē. This time they form part of a mystic harpoon "which gathereth together the rivers," that is to say, is concerned with the weather—the sunbeams and the waters². By the archaic period a change has come over the shape of the weapon. The triple, as well as the single, pattern has dropped out of fashion, leaving only the double form. Moreover, the shape of this begins to alter in detail though it still remains recognizable. By this time we know it to belong to Min, for the object is carved twice on each of two of the archaic Min statues from Koptos.

Here we have not only  but also ³. While the first is

clearly the old weapon of prehistoric times, the second already shows the beginning of the stylized and decorative treatment we know so well from this time onwards. It has the straight vertical lines at the base of the barbs, the blunt point and the flaring sides. The usual form of the Old Kingdom is nothing but this lengthened out and blunted, though to such an extent that without the intermediate forms it would have been difficult to recognize it as the arrow-like weapon of prehistoric days. Thus, our earliest representation of Min shews that this weapon already belonged to him. Yet we know it to have been the "light"-weapon, and the god who wields such a weapon is normally the sky-god. Min, therefore, should show signs of being such a sky-god, if our thesis is correct.

While the examples from the archaic statues of Min are only in the act of taking the well-known form, another and contemporary monument presents the shape already completely developed, ⁴. Here again the object belongs to Min, for it either

represents the god himself or, what is perhaps more likely, his original nome, the Panopolite. By the Second Dynasty the fully formed shape is to be found again⁵, and in the Third Dynasty we have it yet again, when it stands for the name of Min⁶. In the Fifth and Sixth Dynasties the shape is still common and the object represents Min⁷.

¹ Sethe, *Pyr.*, § 324, "Wenis is a flame before the wind to the end of heaven and the end of earth, because the *hnbw* are lifted up in the form of Wenis."

² *Op. cit.*, § 1212, where the spell reads, "Take for thyself this thy harpoon—thou being favoured—(even) thy staff which gathereth together the rivers, whose prongs are the *hnbw* of Rē (sunbeams?) and whose barbs are the claws of Mafdet."










³ Petrie, *Koptos*, Pl. iii, figs. 2, 3=Pl. iv.



⁴ On the mace-head, Quibell and Petrie, *Hierakonpolis*, I, Pl. xxvi c, fig. 1.

⁵ Petrie, *Royal Tombs*, II, Pl. xxii, 189.




⁶ *Id.*, *Medum*, Pls. xvi, xx, xxi.

⁷ Sethe, *Pyr.*, Wenis, §§ 256, 424; Pepi I, § 953; Merenrē I, §§ 953, 1712; Pepi II, § 953.

It lasted on into the First Intermediate Period, and possibly even through into the early Twelfth Dynasty. But already at the end of the Sixth Dynasty a new and simpler form was introduced in Pepi II's reign, which was finally to supplant it. Its history from the Sixth Dynasty to the early Twelfth is indicated sufficiently clearly by two series of monuments. These are the inscriptions of the Wâdî Hamâmât and the tombs at Akhmîm of the important men of the Panopolite nome. In the Wâdî Hamâmât at the beginning of the Eleventh Dynasty Mentuhotep I still uses the old double form¹ as also does Mentuhotep II Neb-tawi-rêr in the middle of the dynasty². But in one of his inscriptions the latter king uses the new form not only as well as the old one but also more commonly³. At Akhmîm ten of the inscriptions use the old double sign ⁴, three use the new simple sign  or ⁵, and two use both the double and the simple forms⁶. Though no sequence has yet been worked out for the Akhmîm tombs, there would probably be some sort of natural order in their numbering by the modern archaeologist. He no doubt moved from one tomb to its neighbour, and in the same way the original hewers would have moved progressively about the face of the cliff. It is, therefore, probably more than a mere coincidence that the new simple form does not begin here until late in the list, at No. 19, and then tends to oust the old double form. In consonance with this is the fact that the only tomb stated to belong to the early Twelfth Dynasty does not use the old  but only the new ⁷, for this certainly suggests that the old one had died out by that time. At Koptos Sesostri I uses a queer form ⁸ related to both the older and the newer types; for, while it is still double, it has lost the vertical bars of the Old Kingdom, and has become elongated and pointed as is so usual in late times. Amenemhat II uses the new form in all its simplicity⁹, as does Sebekhotep III in the Thirteenth Dynasty¹⁰. So also one of the Antefs uses  in his inscriptions at Koptos, without a thought for the old type¹¹. Therefore, just as the original prehistoric  was being replaced by  in archaic times, so this latter in its turn had died out by the beginning of the Twelfth Dynasty, about 2000 B.C.

The sign that took its place and continued in use for the rest of Egyptian history was  or . This is a simplification of the other variety, for it represents only one pair of objects instead of two¹². This simplification was natural to the form, for in the middle prehistoric age we find not only triple and double types, but

also the single variety  and . In the early First Dynasty we

have a curious variant ¹³. As this probably accompanies the two falcons which would represent the Koptos nome (Fig. 1) there can be little doubt that the object itself is the Min symbol. Its ends are very like those now given to the old weapon  representing flashes of light. In the reign of Pepi II, when change was in the air once more and the simple form was finally superseding the double, a variant  occurs once¹⁴ which reproduces fairly accurately this First Dynasty type.

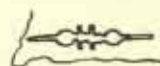


Fig. 1

¹ Couyat and Montet, *Hamammat*, Pl. xxx, 112.

² *Op. cit.*, Pls. xxix, 110, xxxvii, 192, l. 3.

³ *Op. cit.*, Pl. xxxvii, 9, 17, 18.

⁴ Newberry, *Liverpool Annals*, iv, 99 ff., nos. 1, 3, 4, 9-12, 21-23.

⁵ Nos. 19, 25, 27.

⁶ Nos. 24, 26.

⁷ No. 25.

⁸ Petrie, *Koptos*, Pls. ix, 2, x, 1.

⁹ Birch, *Cat. Eg. Antig. at Alnwick Castle*, Pl. iii.





¹⁰ Prisse d'Avennes, *Mon. ég.*, Pl. viii.




¹¹ Petrie, *Koptos*, Pl. vii, 14, 15, 17.

¹² As may be seen in Sethe, *Pyr.*, §§ 1928, 1993.

¹³ Den-setui; Petrie, *Royal Tombs*, i, Pl. xvi, 25.

¹⁴ Sethe, *Pyr.*, § 256.

But as a rule it was merely a question of reducing the double form  then current to a single one ¹. One example, while still showing the old flaring sides and broad points, differs from the old pattern in separating the sides from the central circle and giving them hollow ends ². This makes the connecting link between the older forms and the entirely new one ³ which first occurs in the same reign as the others, that of Pepi II. It introduces another new feature which for our purpose is as important a change as the reduction of the multiple forms to a simple one. This is that the end pieces simply expand from a blunt point instead of curving in a flaring manner to the bars on either side of the central circle. In some ways this constitutes a return to the original barbed type where the barbs stand away from the central circle. The difference is one of drawing more than of idea.

Whatever may have been the cause of the gradual change from the prehistoric arrow-like weapon to the later  and , the important point for us is that in the end Min's symbol took a certain shape. This shape is either very like that which the Greeks adopted long afterwards as the bolt in the midst of flames or lightning flashes with which they represented Zeus' thunderbolt, or else it is exactly the same; compare especially  (Egyptian) with Figs. 2 and 7 (Greek). Min thus comes into relationship with Zeus; and this is not unnatural, seeing he was the original of Amūn, who was Zeus.

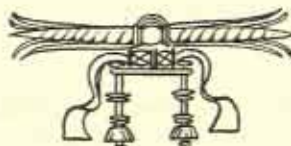


Fig. 2



Fig. 3

An extremely important centre of Zeus-worship was at Seleucia Pieria, the port of Antioch in North Syria⁴. There are plenty of coins of this city and they very regularly exhibit the local sacred object. They are of peculiar interest to us here, for the object takes two forms, Figs. 2 and 3. The usual one is the ordinary thunderbolt of classical art, as might be expected in such a city (Fig. 2⁵), and where this type bears the name of a god he is called Zeus Keraunios⁶. More rarely, however, the coins exhibit a very different object, and that is an omphalos in a temple (Fig. 3)⁷. This no doubt is the original sacred object of which the thunderbolt is a Greek interpretation. For just as it

¹ Sethe, *Pyr.*, §§ 1928, 1993, Pepi II. ² *Op. cit.*, § 1998, Pepi II. ³ *Op. cit.*, § 1948, Pepi II.

⁴ The foundation of the city was due to the fall of a thunderbolt. Appian, *Historia Romana, Syriaca*, § 58. A list from that city shows that an order of priests there was called κεραυνοφόροι, "Thunderbolt-bearers." *C.I.G.*, III, no. 4458. In A.D. 129 Hadrian was sacrificing on the top of Mount Casius, when a thunderbolt fell and took not only the victim but the priest as well. Aelius Spartianus, *De Vita Hadriani*, Ch. XIV, ll. 3 ff. (H. Peter, *Scriptores Historiae Augustae* (Teubner's edn.), I, 15, ll. 24 ff.). No wonder, then, that one of the explanations given by Hesychius for the word κεραυνος is "Zeus in Seleucia."

⁵ See Wroth, *Cat. of the Greek Coins in the Brit. Mus., Galatia, Cappadocia, and Syria*, Pls. xxxii, 3-8, 10, xxxiii, 2, and pp. 269 ff. for the mention of many more. Another city where the thunderbolt was enthroned as a deity was Diocaesarea in Cilicia Tracheia, G. F. Hill, *Cat. Greek Coins in the Brit. Mus., Lycania, Isauria, and Cilicia*, Pl. xiii, fig. 1; in a temple, p. 72, nos. 6, 7. (Figs. 2 and 3 are published here by kind permission of the Trustees of the British Museum.)

⁶ Wroth, *op. cit.*, 275, no. 46; 276, no. 56.

⁷ *Op. cit.*, Pls. xxxii, 9, xxxiii, 3, 4, 7, 8, and pp. 272 ff. for the mention of others. Sometimes there is a kind of hole in its side. The strings of little balls laid over the stone would be the sanctifying *taeniae*.

is the more primitive object, so the god to whom it is sacred is not given the Greek epithet Keraunios, but is called Zeus Kasios¹. This is evidently a Graecized version of the native Semitic title, which could be derived from a Semitic root meaning "The Cutter, Breaker²". Thus, at Seleucia Pieria we have two forms of Zeus, the Greek Keraunios and the Semitic Kasios; the Greek with the classical thunderbolt, the Semitic with a primitive stone omphalos. The two objects thunderbolt and omphalos are, therefore, one and the same, being the intrusive Greek and the native Semitic interpretations of the one original idea.

If the thunderbolt was the omphalos, it was just as certainly the meteorite. In Greek mythology the thunderbolt is the "light"-weapon with which Zeus blasts his enemies, just as in Semitic mythology the angels of Allah destroy devils³ and evil djinns⁴ with the meteorite. Good evidence that the Greeks themselves identified the lightning with the meteorite is supplied by the expression "star-flung thunderbolt⁵." More proof that the Semites did not distinguish between the meteorite and the thunderbolt is provided by the Koran's version of the overthrow of the Cities of the Plain. The Old Testament says it was "brimstone and fire from the Lord out of heaven" which was "rained upon Sodom and upon Gomorrah⁶." This can hardly mean anything but a severe thunderstorm with the lightning continually striking. Yet the Koran transforms the cause of the destruction into "stones" which it equally says were "rained upon them⁷." Stones which fall from the sky are of course meteorites. It is clear, therefore, that in ancient days the meteorite was the thunderbolt, a belief that has survived into modern times⁸. Moreover, as the coins of Seleucia Pieria show, the thunderbolt was the omphalos also. Yet again we know that the omphalos was the substitute used for an original sacred meteorite⁹. Thus, meteorite, omphalos, and thunderbolt were all one and the same thing in religion.

¹ Wroth, *op. cit.*, 272 ff., nos. 29, 30, 36-45, 47.

² Roscher, *Lexikon*, s.v. *Kasios*, col. 970.

³ The Koran, Surah xv, 18, and again Surah xxxvii, 10, where in a similar passage the same word *shihab* is used again. On one occasion it is called "visible" and on the other "brightly shining." Maulvi Muhammad Ali's edition *The Holy Qur-an* is a useful one, as it has the English translation alongside the original Arabic.

⁴ R. F. Burton, *The Thousand Nights and a Night* (Benares, 1885), I, 224. Cf. the duel between the kings of the believing and unbelieving djinns. *Id.*, *op. cit.*, VI, 109. In each case the expression is the same, "cast at the *afrit* (me) with a shooting star of fire (*shihab min nar*). For the text see W. H. Macnaghten, *The Alif Laila* (Calcutta, 1839), I, 172; III, 97. *Shihab* is the ordinary word for "shooting star," but here its dangerous nature is emphasized by the addition of the words "of fire."

⁵ *ἀστὴροβόλτρα κεραυνόν*. For a discussion of the passage and the various emendations proposed, see Cook, *Zeus*, II, 119, note 1.

⁶ Genesis, xii, 24.

⁷ Surah xi, 82, and the story is repeated in xv, 74, where the same apparently unique expression is used again. In Surah cv, 4, the enemies of the Meccans are destroyed by the same "stones of fate," which on this occasion were cast by heaven-sent birds. On this phrase "stones of fate," which has been much misunderstood, see Maulvi Muhammad Ali, *op. cit.*, 468, note 1198.

⁸ G. T. Prior, *A Guide to the Collection of Meteorites* (in the British Museum), 1926, 10; A. S. E. Ackermann, *Popular Fallacies*, 3rd edn., 376, 377. How vague are the ideas about meteorites and how general is the confusion between them and "thunderbolts" can easily be discovered by a few minutes' conversation with almost any of one's friends. Ackermann, *ibid.*, records another very widespread idea about "thunderbolts."

⁹ Wainwright, *Ann. Serv.*, xxviii, 184-6. Artemis' meteorite at Ephesus was replaced by an omphalos at each of her shrines of Perga, Pogle, and Andeda; at Delphi the old meteorite, "The Stone of Kronos," had given place to the omphalos; Amun's meteorite at Thebes, if it be accepted as such, was replaced by an omphalos at each of his shrines of Napata and Ammonium (Sifwah).



It is, therefore, very right and proper that the "light"-weapon  or thunderbolt should belong to Min, for he is a partner in the *Kꜣ-mwt-f* meteorite. Another partner in it is Horus, who was in some way also connected with the "light"-weapon or thunderbolt. For the name of one of his cities, Letopolis, was spelt , *Hm*, using this very sign. The *Kꜣ-mwt-f* meteorite was, therefore, closely connected with the "light"-weapon, and moreover it had omphaloi for its substitutes. Not only did its prime owner, Amūn, become an omphalos-god at Napata (Fig. 4) and Siwah, but at Hierakonpolis Horus was also an omphalos-god¹ (Figs. 5 and 6)². Both of Min's partners in this meteorite were, therefore, omphalos-gods, as they should be on the analogy of Artemis and Apollo, and one of them (Horus) was also associated with the "light"-weapon or thunderbolt. Thus, in the *Kꜣ-mwt-f* object meteorite, thunderbolt, and omphalos meet in the persons of the three partners, Amūn, Min, and Horus. Actually Min forms the link between the other two, for, just as Amūn was identified with Min, so was Min identified with Horus. To Amūn Min gave his figure, and with Horus he formed a



Fig. 4.



Fig. 5



Fig. 6

compound deity Min-Hor³, or a new one Min-Hor-nekht⁴ or Min-the-King-Hor-nekht⁵, and Min was often called "Horus raising the arm"⁶ in allusion to his well-known attitude, or even "Min, son of Isis"⁷.

The closeness of the identification of Min with Horus is scarcely realized. We have just seen that while Min had the thunderbolt for his emblem, Horus' city of Letopolis equally used it as its emblem. At Koptos itself in archaic days there were not only the famous statues of Min, but also a gigantic statue of a falcon⁸. In late times Horus harpoons

¹ Wainwright, *op. cit.*, 184, 188-9, where figs. 4 and 5 have already been published.

² Fig. 6 is drawn from Quibell and Petrie, *Hierakonpolis*, I, Pl. xlvi, 7.

³ Couyat and Montet, *Hammamat*, 49, no. 47, l. 3. Cf. *Nebesheh* (bound with *Tanis*, II), Pl. ix, 4, and Griffith's remarks on p. 35.

















⁴ Lange and Schäfer, *Grab- und Denksteine des mittl. Reichs*, III, 29, 30, s.v.; Boeser, *Aeg. Sammlung*, II, *Stelen*, Pls. xviii, 27, xxxii, 42; Prisse d'Avennes, *Mon. ég.*, Pl. viii; Lanzzone, *Dis. mit. eg.*, Pl. cccxxxiii, 2; Daressy, *Statues de divinités*, no. 38836, and Pl. xliii.

⁵ Rochemonteix, *Edfou*, I, p. 15, no. 35, and p. 391.

⁶ Sélim Hassan, *Hymnes religieux*, 140; Petrie, *Koptos*, Pl. xx, horizontal line 13; Rochemonteix, *Edfou*, I, 390; Couyat and Montet, *op. cit.*, p. 111, no. 238, l. 3, and Pl. xlv, shew a deity compounded of a falcon with human legs and raised hand and whip, who is called "Min [of Koptos]."

⁷ Hall, *Hierogl. Texts from Eg. Stelae etc. in the Brit. Mus.*, VII, Pl. xliii.

⁸ Petrie, *Koptos*, Pl. v, 6, p. 7, § 12.


were dedicated there¹, and Horus himself appears on several sculptures from that city². The nome itself was that of  ³ and it seems probable that these two Horuses represent Min and Horus⁴.  , "The Two Horuses," was a common personal name at Min's other city of Akhmim⁵, and probably referred to this intimacy between the two gods. The priesthood of Min was very intimately connected with Horus whether at Akhmim or Koptos. At Koptos in late times every one of Min's six priests had  for his ensign⁶, that belonging to his high priest being crowned with the white crown  and that of the second priest with the red crown . At Akhmim, in late times at least, Min's high priest was called   , "Servant of Horus⁷," not "Servant of Min" as might have been expected. The title of Min's high priest at Koptos was    or  , *smsty*(?)⁸, and at Akhmim the word occurs again as the title of an important priest, though whether he was the high priest is not known⁹. The title is to be found at least as far back as the Third Dynasty, for Nefermaat was , "*smsty*(?) of Min¹⁰," though there is no indication as to whether he served at Koptos or Akhmim. The *smsty*(?)-priest forms an important link between Min and Horus, for in early times he also served the latter, but besides these two there was only one other god to whom he ministered¹¹. Min and Horus combined in the *Kt-mwt-f* object. Hence at a later date when we come to hear of this fetish it is quite natural to find that it was also served by a *smsty*(?)-priest in the late New Kingdom¹². Min, therefore, was just as certainly Horus as he was Amūn, and so had every right to participate in the *Kt-mwt-f* meteorite.

This introduces another fact about the *Kt-mwt-f* gods which is corroborative of what we have found already; if Amūn was the thunderbolt-god Zeus, Horus was just as certainly Apollo¹³ the omphalos-god of the meteorite-city of Delphi¹⁴. Apollo was also

¹ Petrie, *op. cit.*, Pl. xxi, figs. 4-6.

² *Op. cit.*, Pls. vii, 16a; xviii, 2; xix.

³ Petrie, *Royal Tombs*, I, Pl. xvi, 25 (probably Den-setui, First Dynasty) = Fig. 1 of the present article; Montet, *Comptes rendus de l'Acad.*, 1914, fig. facing p. 568, vertical col. 4 (First Intermediate Period). The two falcons on their perches are common in the First and Second Dynasties; there is, however, no likelihood that they refer to the Koptos nome; Merbapa, Petrie, *op. cit.*, I, Pls. v, 12, vi, 4, 8; Khasekhemui, *op. cit.*, II, Pl. xxiii, 191-7, 199, 201. It is also quite uncertain what the two falcon standards represent that accompany Narmer; Quibell and Green, *Hierakonpolis*, I, Pls. xxvi b, xxix.

⁴ It seems unlikely that the group should be read "The Two Gods," referring to Set at Nubt and Horus at Koptos opposite. Doubtless is characteristic of Min. Not only is Koptos the nome of the "Two Falcons," but two nomes claimed him as their patron (Akhmim and Koptos). In early historic times it was the double form of his emblem that was used in preference to the triple or single varieties. On his archaic statues the emblem is shewn in pairs, as are the saws of the sawfish () and the Pteroceras shells.

⁵ Newberry, *Liverpool Annals*, IV, 99 ff., nos. 7, 13, 14, 19, Coffin no. 1.

⁶ Brugsch, *Dict. géogr.*, 1374, 1375.

⁷ *Op. cit.*, 1375.

⁸ *Op. cit.*, 1361, 1374.

⁹ Newberry, *op. cit.*, IV, 103-19, tombs 3, 10, 12, 24, 26, 27; Kees, *Rec. trav.*, xxxvi, 53; Moret, *Sarc. de l'époque bubastite etc.*, I, 327.

¹⁰ Petrie, *Medum*, Pls. xvi, xx, xxi.


¹¹ He was Anubis; Murray, *Index of Names and Titles of the Old Kingdom*, Pl. xix, col. 3; in late times the *wtj* of Thebes had a *smsty*, A. Moret, *Sarc. de l'époque bubastite à l'époque saïte*, I, 325; at this time Sopd also seems to have had one, Prisse, *Mon. ég.*, xxxii, fig. 1. For studies of this priesthood see Schäfer in Sethe's *Untersuchungen*, IV, 63, 64; Bissing and Kees, *Das Re-Heiligtum des Königs Ne-woser-re (Rathures)*, III, 23.


¹² Moret, *op. cit.*, I, 327.


¹³ Herodotus, II, 144; Plutarch, *De Iside et Osiride*, §§ 12, 54 (Teubner's edn., *Moralia*, II, 482, I, 17; 483, II, 9, 10: 528, II, 25 ff.): *cf.* the dedication to "Aroeris the great god Apollo," de Morgan, *Kom Ombo*, II, 339, no. 1044. Apollinopolis Magna was the name given by the Greeks to Edfu, the city of Horus, which by their day had completely overshadowed his ancient sanctuary at Hierakonpolis only some thirteen miles away.

¹⁴ For the presence of the "Stone of Kronos" at Delphi and its meteoric origin see Frazer, Pausanias's *Description of Greece*, Bk. x, ch. 24, § 6 and notes thereon; Jane Harrison, *J.H.S.*, 1899, 239-242.

the Syrian god Resheph¹ whose name means "Lightning, Flame²." On the rare Egyptian representations which show Resheph with a group of gods Min commonly figures among them³. Min was, therefore, associated with Apollo whether in his Egyptian or Asiatic forms. This is important in itself, but it also advances the enquiry another step.

This it does by introducing the *labrys* and its cycle of associations. The excavations at Delphi have shewn that a number of little *labrys*-axes had been deposited as votive offerings under the sanctuary and by the very altar itself⁴. The double axe was, therefore, sacred to Apollo, the Greek equivalent of Min's partner Horus. In Egypt the *labrys* is very rare except in the earliest times, but the evidence it contributes is significant. Originally it had been used as a weapon, in which capacity it survived as late as the archaic days⁵. In prehistoric days it had already become sacred, for there is a beautiful flint amulet of this date still extant⁶. In the first part of this period its picture was already used as a pot-mark⁷, a use which it still served in protodynastic times⁸. By the end of the First Dynasty it had become a hieroglyph ⁹. In the Old Kingdom it had

definitely become the sacred object of some god¹⁰. At that time it forms one of a small group of five deities. It is in this way that it comes in contact with Min, for he also is included in the group. The five are united by the *lmy-h* or *ht*-priest who serves each of them. While one of them is the *labrys* , another is Min, the third is his other self

Horus, and yet another is the mountain ¹¹. In other countries the mountain is intimately related to the light- sky- or storm-gods, just as is the *labrys*¹². Hence in

¹ In Cyprus bilingual inscriptions translate the Semitic "Resheph" by the Greek "Apollo," Pauly-Wissowa, *Real-Encyclopädie*, s.v. *Resheph*, col. 620.

² *Op. cit.*, s.v. *Resheph*, col. 621.

³ Min, Prisse d'Avennes, *Mon. ég.*, Pl. xxxvii; Min altered into a goddess, W. Max Müller, *Eg. Researches*, I, Pl. xli; Min-Amen-rê-Ki-mwt-f, Lanzzone, *Diz. mit. eg.*, Pl. clxxxii.

⁴ P. Perdrizet, *Fouilles de Delphes*, v, 120, 121. A number of small stone axes were also found, which seem to have come almost entirely from the sanctuary, p. 1.

⁵ Legge, *P.S.B.A.*, xxii, Pl. ii (=xxxii, Pl. xlv, and Capart, *Primitive Art in Egypt*, 231, fig. 170, though these are not such good copies), the last man but one on the upper side and the foremost man on the lower side. As late as the Nineteenth Dynasty the Syrians of the Lebanon were still using it for felling trees, Champollion, *Mon.*, Pl. cxc, 2 = Rosellini, *Mon. stor.*, xlii, 1.

⁶ Hall, in *Essays in Aegean Archaeology presented to Sir Arthur Evans*, 42 and Pl. v.

⁷ Quibell and Green, *Hierakonpolis*, II, Pl. lxvii. The pot on which it occurs is of type P. 56, α, and is therefore to be dated S.D. 31-56 (Petrie, *Corpus of Prehistoric Pottery and Palettes*, Pl. xii).


⁸ Petrie, *Royal Tombs*, II, Pl. xxv, 11.

⁹ *Op. cit.*, I, Pl. vii, 12, from which the example in the text is drawn.

¹⁰ For another priest of the *labrys* besides those mentioned in the next note see Newberry, *Ann. Serv.*, xxviii, 138 ff.

¹¹ Murray, *op. cit.*, Pl. xxxiv, col. α; Newberry, *Liverpool Annals*, I, 27; II, 49, 50; IV, 100; cf. *Wb. d. aeg. Spr.*, III, 344, 347. The other deity is the swallow.

¹² For example, Enlil the Sumerian storm-god was called "The Great Mountain" and his temple "The Mountain House" (M. Jastrow, *Aspects of Religious Belief and Practice in Babylonia and Assyria*, 1911, 68); Adad, the Syrian and Assyrian storm-god, was also called "The Great Mountain" (*op. cit.*, 120). Zeus' birth, death and marriage are assigned to many mountain-tops (A. B. Cook, *Zeus*, I, 148-63); he dwelt on the top of Olympus and went thence to the top of Mount Ida to direct the Trojan War.

Egypt the *labrys* finds itself in the same company as elsewhere in the Levant; the mountain, the Egyptian Apollo (Horus), and a god Min whose emblem had developed from a "light"-weapon. Thus although the *labrys* was not sacred to Min himself, it belonged in Egypt to one of the gods related to him. How close was the relationship between Min and the foreign *labrys*-gods may be seen in the fact that one of the peculiarities of Min's "light"-weapon occurs again in the Cretan *labrys*. It is that just as the former was often manifold in its earlier stages so the *labrys* is sometimes doubled in Crete ¹. As suggested on p. 186 this may be intended to represent power to strike not only in front and behind but in any direction². A further study of the associations of the *labrys* leads round once more to meteorites and omphaloi and thence to arrows and so back to Min again. The *labrys* was not only deposited as a votive offering at the temple of the meteorite- and omphalos-city of Delphi, as has just been mentioned, but also at Ephesus in the temple of the meteorite-goddess Artemis³. Like her "brother" of Delphi she also possessed omphaloi, hers being at her other shrines of Perga, Pogle, and Andeda⁴. She herself was a famous archer, and her "brother" Apollo the light-god was god of the "Silver Bow," "The Far-Shooter," etc.⁵ We have already seen that he was the Greek representative of Horus, but this use of arrows relates him directly to Min, Horus' other self, for Min's emblem was originally a multiple arrow. Min's arrow-like weapon also relates him to the other meteorite- and omphalos-deity, Artemis, who was Apollo's "sister." While Min's weapon gradually took on the shape of Zeus' thunderbolt those of Apollo and Artemis remained merely arrows. But, in conclusion, we must return to the *labrys* from which the discussion arose. It⁶, or sometimes only the simple axe⁷, is the weapon with which the storm-god is armed all over the Near East. It is, therefore, nothing but another interpretation of the thunderbolt, and both represent the lightning-flash and the meteorite, which have as substitutes in religion the omphalos. This cycle of gods and their weapons is that to which Min and his emblem belong. Hence his association with the Egyptian *labrys*-god and his cycle, and the similarity of treatment accorded to both Min's emblem and the Cretan *labrys* are

¹ Drawn from Paribeni in *Mon. ant. della Reale Accademia dei Lincei*, xix (1908), Pl. i. Others are *op. cit.*, Pl. ii; Evans, *The Palace of Minos*, I, Figs. 312 a, b, c; II, Figs. 191, 194 e; III, Fig. 141; *id.*, B.S.A., viii, 103, fig. 61; Maraghiannis, *Antiquités crétoises*, II, Pl. xxi, no. 6.

² Many explanations have been offered of the doubling of the *labrys*, but not this; M. P. Nilsson, *The Minoan-Mycenaean Religion and its Survival in Greek Religion*, 169, n. 5. If the same rule applies to the *labrys* as to Min's light-weapon, the triple form of the latter would seem to invalidate most of the speculations, for they depend on the duplication only of the weapon.

³ Hogarth, *Excavations at Ephesus*, 337, 338, and Index, s.v. *Double-axe*. For the meteorite see Acts, xix, 35.

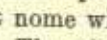
⁴ G. F. Hill, *Cat. Greek Coins in the Brit. Mus., Lycia, Pamphylia and Pisidia*; Perga, Pl. xxiv, figs. 12, 15, 16, and others are mentioned in the text on pp. 122 ff.; Pogle, Pl. xxxvii, figs. 7, 8 = pp. 236, 237; Andeda, Pl. xxx, fig. 11 = p. 175.


⁵ ἀργυρότοξος and ἐκκβελλος.

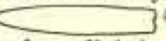
⁶ For an important collection of evidence, though mostly derived from the Greek world and primitive Europe, see A. B. Cook, *Zeus*, II, 513-579. Cf. also *op. cit.*, I, Figs. 487, 489, 494, and Pl. xxxiv, for these shew Zeus Dolichenus, the storm-god of Doliche, modern Dülük, which also is in North Syria like Seleucia Pieria.

⁷ For example, F. von Luschan, *Ausgrabungen in Sendschirlî*, III, Pl. xli, and R. Koldewey, *Das wieder ersehende Babylon*, 1925, Fig. 103 (= A. E. Cowley, *The Hittites*, Figs. 13, 28); A. H. Layard, *Nineveh and its Remains*, II, fig. facing p. 451. In each case the god bears the lightning in one hand and the axe in the other.

still more arguments in favour of our thesis. This is that Min's emblem is the Egyptian variety of what later, and in other lands, became Zeus' thunderbolt.

This belief gets a remarkable corroboration from a very different source. It is that the city of Akhmim proves to have been founded at a spot eminently suitable for the capital of that nome which not only took  for its standard but gave it to its god as his fetish. The object, as we know, was derived from the "light"-weapon and developed a shape very like that of Zeus' thunderbolt. Although there is no such thing as a solid thunderbolt, many classes of objects have been called upon to serve as such in popular belief. The meteorite has just been mentioned¹, and another is the fossil called belemnite². This latter may at times attain a length of eight or even ten inches. It also has just the same shape as that commonly given to Zeus' thunderbolt,

³, and is also very like the shape finally adopted by Min's emblem. As it

happens, Dr. Hume, of the Geological Survey, Cairo, tells me that there are no belemnites in Egypt, but there is in the country another fossil called *Lithodomus*, which is very like the former in outline ⁴. The Egyptian species seems to be much larger than the English, and of a slightly different shape. The collection in Cairo includes a number of specimens having a length of about four or five inches. This is no doubt the fossil which Newberry reports as existing in such quantities in the rocks at Akhmim⁵. Its abundance would have given rise to the belief that this was a place especially chosen by the god, for had he not cast bolts innumerable upon it? The place would, therefore, naturally become sacred to the god of the "light"-weapon, as in fact it did. It is interesting to find this association of divine weapon and fossil right back at the very dawn of civilisation. It shows that the still common idea which connects such fossils with thunderbolts is one of the most ancient of modern man's legacies from the past.

Though the presence of the *Lithodomi* no doubt accounts for the settling of Min at Akhmim, it is hard to say whether these fossils had any influence on the development of the historic shape of his emblem. It is of course very possible that they influenced the inordinate broadening and lengthening of what was originally the point of the weapon and also the disguising of its barbs.

The establishment of Min's worship at a place full of "thunderbolt"-like objects and his possession of an emblem that had developed from a "light"-weapon corresponds to certain well-known characteristics of his statue. These are the high feathers, the streamer, the raised arm, and the whip-like implement. Spiegelberg has already shewn that the feathers indicate dominion in the air⁶. Similarly, Sethe has noted that the streamer apparently has to do with the wind⁷. The arm that is raised ready to strike is characteristic of the sky-gods all through the Near East, whether Enlil, Hadad,

¹ See p. 189.

² Blinkenberg, *The Thunderweapon in Religion and Folklore*, 72 ff., nos. 20, 39-47, 81, 94 b, 96, 98, 104, 107, 109, 110. All these examples are collected from Northern and Eastern Europe.

³ Traced from D. Sharpe, *Description of the Fossil Remains of Mollusca found in the Chalk of England*, Pl. i, figs. 3, 4 c (published by the Palaeontographical Society, London, 1853).

⁴ Sketched by the author in the Cairo Geological Museum (scale c. $\frac{1}{2}$).

⁵ Newberry, *Liverpool Annals*, iv, 99, second note. Dr. Hume considers it quite likely that *Lithodomus* should be found at Akhmim, though he himself does not happen to know of it there.

⁶ Spiegelberg, *A.Z.*, XLIX, 127, 128.

⁷ Sethe, *Amun und die Acht Urgötter von Hermopolis*, 22, § 30, quoting *Pyr.* §§ 1928 c, 1948 a.

Teshub, Resheph, or Zeus. Fig. 7, which is drawn from an early and very beautiful statuette of Zeus from Dodona¹, will serve as the type. It is the dangerous character of the sky-god that provides him with his weapon, and, if he has a weapon, he must raise his arm before he can either hurl it or strike with it.

Finally, there is Min's whip-like implement, which in so far as it is a whip² associates him once more with this cycle of gods. In Greece and other parts of the world the whip is quite a common symbol of the lightning-flash³. At Zeus' shrine of Dodona there was the famous gong which kept the whole countryside reverberating with its sound. It consisted of a metal bowl struck by a boy with a whip. As this whip had three lashes⁴, it was singularly like Min's implement.



Fig. 7

Hence, whatever his other aspects may have been, it is evident that a very great deal in Min's iconography allies him to the gods of other lands who ruled over the sky, light, air, wind, and storm. In his own country his associates were Amūn, who was Zeus, the Greek storm-god, and Horus, who was Apollo, the Greek light-god. When the lightning-god Resheph, the Syrian and Cypriote form of Apollo, entered Egypt, he commonly took Min as companion. Min's city of Akhmim was founded at a place full of "thunderbolts." Min, therefore, had every right to participate in a meteorite, for it is sacred to such gods as the foregoing. It was, therefore, sound theology that gave him a share in the *Ki-mut-f* object, for that shows many signs of being a meteorite. Meteorites being thunderbolts, it was also correct that the emblem of such a god as Min should have been the "light"-weapon, which took on the shape of the Greek thunderbolt.

¹ Kekule von Stradonitz and Winnefeld, *Bronzen aus Dodona*, Pl. i. (Fig. 7 is given here by kind permission of the publishers.)

² But see Mace and Winlock, *The Tomb of Senebtisi*, 94 ff.; Newberry, *Journal*, xv, 86 ff.

³ Cook, *Zeus*, II, 824 ff.

⁴ *Id.* in *J.H.S.*, xxii, 8 ff., esp. the fig. on p. 12.

EARLY BYZANTINE AND LATER GLASS LAMPS

BY GRACE M. CROWFOOT AND D. B. HARDEN

With Plates xxviii-xxx.

The use of standing and hanging lamps of glass for illuminating churches and other buildings is referred to as a contemporary practice by several ancient authors writing in the 4th and following centuries A.D.¹, and some mosaics of about the same date depict various types of lamps in use which seem to have been of glass². Working from these indications in Byzantine literature and contemporary art, Rohault de Fleury³, Dillon⁴, Lamm⁵ and others have identified as lamps certain types of glass vessels of Byzantine date which have survived. These vessels are of various shapes, and were used for different types of lights: some as true lamps burning a wick, and some as candlesticks; some as single lights, and some as elements in a polycandelon or chandelier.

Within the last few years two excavations have yielded results of such importance in connexion with this subject that the time seems ripe for a further consideration of the whole matter. In the first place, the University of Michigan Near East Expedition, working at Kôm Aushim (the ancient Karanis) in the Fayyûm since 1924, has unearthed, amongst many other fine specimens of Late Roman and Early Byzantine glass-ware, examples of two shapes of vessel which were almost certainly used as lamps; and secondly, the British School of Archaeology in Jerusalem, in conjunction with Yale University, working on the Byzantine churches of Jerash in Transjordan in 1928-9, found numerous fragmentary specimens of glass vessels which also must have served such a purpose.

The two types from Karanis both occurred in the later levels, which can be dated by finds of coins, papyri and ostraca to the 4th and 5th centuries A.D.⁶ One of them, one of the commonest types of glass recovered from the site, is conical in shape, the other is a hemispherical bowl⁷.

¹ A useful list of references will be found in M. L. Trowbridge, *Philological Studies in Ancient Glass*, Univ. of Illinois Studies in Language and Literature, xiii, Nos. 3 and 4, pp. 190 (420) ff. Further references are given by Rohault de Fleury, *La Messe*, vi, 1 ff.

² One such example was discovered during the excavations of the British School at Jerash in 1928-9 in the mosaics dated to A.D. 831 on the N. side of the Church of S. John the Baptist. In it the glass is depicted in light blue tesserae and the metal holder and chains in black. Cf. J. W. Crowfoot, *Churches at Jerash*, Pl. vii. Other examples may be seen in the Church of S. George at Salonika, dating perhaps as early as the 4th century A.D.: cf. Ch. Diehl, M. Le Tourneau, H. Saladin, *Les monuments chrétiens de Salonique* (*Monuments de l'art byzantin*, iv), 27-8 and Pl. i, 1; there are others in the Church of S. Demetrius at Salonika which are not later than the 6th century; cf. O. M. Dalton, *Byzantine Art and Archaeology*, 613.

³ *Op. cit.* with Pls. 136 ff.

⁴ E. Dillon, *Glass* (*Connoisseur's Library*), 1907, 97 ff. and 150 ff.

⁵ C. J. Lamm, *Das Glas von Samarra*, 30 ff.

⁶ Cf. A. E. R. Boak and E. E. Peterson, *Karanis 1924-28*, *University of Michigan Studies, Humanistic Series*, xxv, 5 and 39.

⁷ For a fuller description of these glasses see the forthcoming catalogue of glass from Karanis, by D. B. Harden in the above series.

A. *Conical Type* (Pl. xxviii, 1-3).

Upwards of twenty complete examples and innumerable fragments of the type came to light in five seasons' digging. All these are very uniform, and only differ in minor details of rim- and base-technique, and in decoration. The rim is either plain-cut (usually, but not always, smoothed by grinding) or cut and afterwards rounded off in a flame; the sides are straight or very slightly concave or convex, and taper gradually to the base, which is pointed or slightly flattened. The glass is of the ordinary late Romano-Egyptian variety, bubbly and specked with black and brown impurities, and varying in colour from greenish or yellowish colourless to deep yellowish green. The decoration, when any is present, is simple, and consists of applied coils, horizontal groups of wheel-incisions, and added blobs of blue glass, usually in horizontal rows¹. Decoration of applied coils and wheel-incisions is found on many other types of glass at Karanis, but blue blobs are only found on these conical glasses and on the hemispherical bowls of type B below; this is an important consideration.

The type is well-known on Romano-Egyptian sites, and many examples have already been published². Edgar, in his catalogue of the Cairo Museum collection, calls them simply "vases" and makes no suggestion as to their possible use. Wainwright, in a publication of seventy specimens of Late Roman glass from the Fayyûm, lists twelve specimens of this type and rightly identifies them as lamps, only giving as reasons, however, their similarity in shape to the lamps used in the mosques to-day, and, secondarily, their transparency.

Most of the examples discovered at Karanis have a distinct oily feel³, a phenomenon found on no other type of glass-ware from the site except the parallel class of hemispherical bowls. One fragmentary specimen contained a lump of sediment at the bottom, which, when analysed, showed very definite traces of oil⁴. It seems certain, therefore, that these vases were frequently, if not always, used as lamp-glasses.

B. *Hemispherical bowls* (Pl. xxix, 17).

These are much rarer than the conical vases, and only one nearly complete specimen and a few recognizable fragments were found. Two complete specimens in the Cairo Museum also come from Karanis⁵.

In technique, fabric and decoration these bowls are strictly parallel to the conical glasses. The nearly complete example was found in 1927 along with two conical glasses⁶, and had, like them, an oily feel. It can hardly be doubted therefore that these bowls also were used as lamps.

A rare intermediate type, half-way in shape between the conical glasses and the hemispherical bowls, may be recognized in a unique specimen of Romano-Egyptian glass

¹ A few fragments of the type are found with good horizontal wheel-cuts: these are probably early specimens, perhaps 3rd-century in date. Some fragments also occur with mould-blown decoration in a honeycomb pattern, or with rolled-in thread decoration.

² C. C. Edgar, *Cat. gén. du Mus. du Caire, Graeco-Egyptian Glass*, Nos. 32479-98, pp. 18-22 and Pl. iii. G. A. Wainwright, *Le Musée égyptien*, III, 64-97; for the lamps see especially 76-7.

³ One showed no such traces, but as that same vase, when found, contained four dice, it looks as if it had been used for less laudable purposes.

⁴ The analysis was very kindly performed by W. L. Garstang, B.A., of Trinity College, Oxford.

⁵ Both numbered 43344 (not in Edgar).

⁶ It would seem that the two Cairo examples were also found along with conical glasses (the five numbered 43345 in the Museum), but as they were not found in a scientific excavation certainty on this point is not attainable.

in the Askren Collection now in Ann Arbor (Pl. xxix, 18)¹. This piece is also of the typical yellowish green colour common amongst the conical glasses; it has the same rim-technique, and a decoration, as before, of wheel-incisions and blue blobs; on its pointed base it has a coiled knob of blue glass, a method of finishing off the base which is found on one or two examples of the conical type. On the body there are six large vertical thumb-indents.

At Jerash in 1928-9 several Byzantine churches, which were in use from the 5th to the 8th century A.D., were excavated². In these numerous fragments of glass vessels which were almost certainly used for church-lights were found, notably in one large hoard of perhaps the early 8th century in an annex-building to the church of S. Theodore³. The following main types could be distinguished. In no case was a complete specimen recovered, and none of the fragments showed any trace of decoration.

A. *Beaker-shaped lamps, with flaring mouth* (Pl. xxviii, 4-5).

The rim is rounded off in a flame; the sides flare out strongly towards the top, but are almost vertical in their lower part; the base is concave with a pointed kick, and no example of any kind of base-ring occurred. The two variants figured differ chiefly in the proportion of height to diameter. The base is often so small that the vessel is unstable. Fragments of about 230 of these vessels occurred.

B. 1. *Bowl-shaped vessels on a solid, beaded stem without base* (Pl. xxix, 21-23).

The rim is rounded off in a flame; the sides of the bowl are vertical, and either straight or slightly convex, and meet the bottom in a strong curve; the stem is solid and beaded. No example occurred of a base at the bottom of the stem, and in each case the pontil-mark could be easily seen at the bottom, thus precluding the possibility of the base having been lost. Internally, the base of the bowl is sometimes concave (22), sometimes convex (23). No. 21 is a midway form between these two, and is by far the commonest type, though every variation between the three was found. The stems also varied a good deal in the number of beads and in their shape. Fragments of about 200 vases of this type were found.

B. 2. *Bowl-shaped vessels on a plain, hollow stem* (Pl. xxix, 24-26).

Two variants of this type occurred:

(a) The body is as for B. 1. There is a constriction at the junction of the body and stem. The stem tapers to a point or to a rounded butt. Within, the stem is hollow for part or all of its length (Fig. 24). One nearly complete example and seven stems were found.

(b) The body was probably as for B. 1, but in no case was it restorable. The stem joins the body in an acute- or obtuse-angled curve and is roughly cylindrical with a slight downward taper. Within, it is hollow down to the butt (Figs. 25-26). A number of stems were found.

¹ Mich. 5120. Bought in the Fayyûm by Dr. D. L. Askren, perhaps from Karanis.

² For a preliminary publication cf. J. W. Crowfoot, *Churches at Jerash* (1931).

³ The discoverers considered this to be a dump collected towards the end of the life of the church for remelting in a glass factory near by, of the existence of which there was independent evidence.

C. 1. *Bowl with straight, outplayed sides and three handles* (Pl. xxx, 40).

The rim is folded outwards and downwards in a hollow fold; the sides are straight and taper to the base. No trace of a base on any example was found, but it was probably concave with a kick and no base-ring. Three vertical handles of drawn glass, usually of a darker blue or green colour than that of the bowl, join the rim with the centre of the sides. More than 30 fragmentary examples were found.

C. 2. *Bowl with curved sides and three handles* (Pl. xxx, 41).

The rim is folded outwards and downwards in a hollow fold; the sides are concave at the top and convex below, and almost vertical until they bend in to join the base; the base is slightly concave without any kick or base-ring. Three handles of drawn glass, of a darker green colour than the bowl, join the rim with the middle of the sides. One nearly complete example was found.

D. *Cup on stem, with three handles* (Pl. xxx, 50).

The rim is folded outwards and downwards in a hollow fold; the sides are straight and slightly outplayed towards the top, but curve in gradually towards the bottom to join the stem; the stem is slender and twisted, and spreads out into a base at the bottom; the base is slightly concave. Three handles of drawn glass, of a slightly darker colour than the body of the vessel, join the rim with the middle of the sides.

One nearly complete example, with handles, was found. There were also between thirty and forty fragments of stems and bases, but these may equally have belonged to handleless drinking-cups.

All the above types were of the same fabric and technique and form a homogeneous class. The glass varies from pale blue to pale green, and has a tendency to strongly-marked, iridescent, flaky decay. Bubbles and flaws are common. They belong, in short, to the ordinary late Romano-Syrian type of glass-ware.

These Karanis and Jerash finds, when combined, show a series of lamp-types extending in use over the period from the 4th-7th century, in other words, from the time of the adoption of Christianity as the official religion of the Empire down to the spread of Mohammedanism over Syria and Egypt. The Karanis finds suggest that, in the early part of this period, conical and hemispherical lamps were predominant. The Jerash finds show that, in the latter part of this period, these earlier types were superseded, in part at least, by beakers, bowl-shaped vessels on a stem, and various kinds of handled glasses.

It seems reasonable to assume that the beaker type (A) of Jerash is a direct development of the conical type (A) of Karanis. It only needs a broadening of the base or, rather, a truncation of the cone a little higher up its sides, and greater splaying of the rim for the former type to be evolved out of the latter. Similarly, it is at least possible that the stemmed-bowl lamps (B) of Jerash were developed from the plain bowls (B) of Karanis. The plain bowl must have been a somewhat unsatisfactory and unstable type, and the addition of a stem would add weight to the base of the vessel and give greater stability. But this is only conjecture¹. The fact remains, however, that there is no evidence that the plain-bowl type was used in the 6th-7th century Jerash churches, so that it had probably gone out of fashion before that time.

¹ It is always possible that the stemmed-bowl type evolved from the conical type by a gradual contraction of the lower and expansion of the upper part of the body. Cf. in this connexion the type, Pl. xxix, 27, found by Kaufmann in the Sanctuary of S. Menas.

The third Jerash type, the handled bowls, is not paralleled in the Karanis finds, but it seems to be the ancestor of many important later types, including the enamelled mosque-lamps.

In the ensuing discussion, the Jerash handled cups and a fifth type, the Samarra candlestick-lamps, are mentioned for the sake of completeness, though it is doubtful whether the former should be considered as lamps at all, and nothing like the latter was found at either Karanis or Jerash.

Group 1. Conical lamps and subsequent developments from them.

Conical glasses of the same shape as the Karanis types are found on sites all over the Roman Empire and are usually dated to the 4th-6th centuries A.D.¹ Many examples, both from Syria and from western European sites, show the same plain-cut rim and the same decoration of horizontal wheel-incisions and added blobs which are typical of the Egyptian examples. That they were lamps in Syria cannot be doubted. The country was so near to Egypt, not only geographically but also culturally, that it is safe to assume that lamp-types used in one country would be prevalent also in the other. In the West there is no evidence, or at any rate no published evidence, of their use as lamps, and it has always been assumed that they were drinking-vessels. Now, in the case of some of these late western examples the technique and decoration are too similar to the technique and decoration of curved Frankish drinking-horns² to admit of any doubt that they had a similar usage. But, if the eastern examples are lamps, there is a possibility, if not a probability, that some, at least, of the specimens from the West were used as lamps too. Churches had to be illuminated in Gaul and Germany no less than in more eastern lands, and it is likely that the same type of lamp would be fashionable in both regions. That such a simple shape of vessel might be used for two such divergent purposes is by no means improbable³.

There is some literary evidence which seems to corroborate this identification of the conical glasses as lamps. Paul the Silentiary in his ode on the reopening of S. Sophia in Constantinople by Justinian in A.D. 563 gives a long and at times somewhat coloured description of the whole church and its furniture in pseudo-Homeric hexameters. In speaking of the lighting arrangements, he mentions long chains hanging from a high cornice and supporting a large circle from which are suspended silver discs. These discs have been pierced "in order that they may receive shafts of fire-wrought glass, and hold light on high for men at night⁴." The word *οὐρίαχος* means spear-butt, so that

¹ Cf. e.g., Morin-Jean, *La verrerie en Gaule sous l'empire romain*, form 107, p. 141 and figs. 189 and 300 c; A. Kisa, *Das Glas im Altertum*, II, pp. 343 and 486, figs. 102 and 154, and Formentafel E. 299; A. De Ridder, *Cat. Coll. de Clercq*, VI, *Les terrecuites et les verres*, No. 260 and Pl. 9 (from Farah in Syria). Numerous examples may be seen in large collections of Roman glass such as those of the British Museum and the Rhineland museums.

² Cf. e.g., Kisa, *op. cit.*, fig. 101 with figs. 103-4.

³ In this connexion it should be mentioned that a case of an Egyptian example being used not as a lamp but as a dice-box seems well proven.

⁴ Paulus Silentiarius, *Descriptio S. Sophiae*, II. 823-6 (*Patr. Graeca*, I, vol. 86, ed. J. P. Migne 1865, pp. 2119 ff.):

τοὺς μὲν ἀνὴρ πολυῖδρις ὅλους ἐτόρῃσε σιδήρῳ,
ὅφρα κεν ἐξ ἰάλοιο πυρικμήτωρ ταθέντας
οὐρίαχον δέξαιτο, καὶ ἐκκρεμές ἀνδράσιν εἷη
φάγγος ἐννευχίου δοχίον.

For an English translation (from which the above is quoted) see W. R. Lethaby and H. Swainson, *The Church of S. Sophia at Constantinople*, 35 ff

it seems certain that something very similar to our conical glasses is meant by the Silentiary.

From this conical type, which may be dated on the above evidence to the 4th-6th centuries, was developed directly, in all probability, the beaker with a broader base and more outplayed lip. It is first found in the 6th-7th century deposits at Jerash, and from that time on has been common in the Near East up to the present day, subject only to minor variations. A modern Palestinian example is illustrated, Pl. xxviii, 8.

Because of their similarity in shape to these beaker-lamps, Dillon¹ makes the suggestion that the well-known Arabic enamelled beakers (Pl. xxviii, 6) of the 13th-14th centuries may have been used as lamps. Lamm² does not agree, maintaining that they were always used as drinking-vessels, but in view of the Jerash finds Dillon may be right. It is at any rate apparent that some of the enamelled beakers are so large that they can never have been used as drinking-vessels³.

Somewhere during the Byzantine period an improvement in this type of lamp was introduced. This was the provision of a vertical glass tube, fixed on to the centre of the base, inside, to hold the wick⁴. The earliest example of such a use is probably the lamp found at Gezer in a 5th- or 6th-century tomb (Pl. xxviii, 7)⁵. A base of another, of about the same date, and as yet unpublished, was found during the excavations at Ophel in 1928-9 in a drain under a Byzantine street. Perhaps about the 12th century examples became very common, and since then the type has continued in use uninterruptedly in Egypt and Syria until the present day. Some examples have a base-ring, and are apparently adapted for standing and not for hanging, but even these were and are often suspended. From Egypt, Lane⁶ publishes early 19th-century examples of the type (Pl. xxviii, 10). Other modern examples may be seen in the Coptic Museum in Cairo and in churches. The type is also current in modern Palestinian mosques and churches (Pl. xxviii, 9)⁷, and even in England examples are made to-day for use as sanctuary-lamps.

A by-form of this type was in use as early as the 5th century, and has lasted with variations down to modern times. This is a shallower beaker, often bell-shaped, and with

¹ *Op. cit.*, 158-9.

² *Samarra*, 34.

³ There is one in the Eumorfopoulos collection which is 0.33 m. high. *Catalogue of International Exhibition of Persian Art*, London, 1931, p. 166, No. 291 J.

⁴ Such a tube is also found in Early Arabic lamps of Group 3.

⁵ R. A. S. Macalister, *Excavations at Gezer*, I, 302-3, tomb 156. As this lamp had three handles for suspension it should perhaps be placed in Group 3, despite its beaker-shape. Professor Macalister, in a communication, has kindly confirmed the above dating.

⁶ *Manners and Customs of the Modern Egyptians* (first edition published in 1836), Everyman's Library, pp. 156 and 167 and figures.

⁷ The three chief types of glass lamps made at Hebron and used to-day in Palestine are:

(a) Straight-sided beaker with or without a wick-holder; *Ḳandil Bawwābi* (doors)—Group 1 (Pl. xxviii, 8-9).

(b) Bowl on plain, hollow stem; *Ḳandil Bazzāka* (snail)—Group 2 (Pl. xxix, 36).

(c) Three-handled beaker with splayed mouth and usually with a wick-holder; *Ḳandil Kāfi* (palm of the hand)—Group 3 (Pl. xxx, 42).

The shop-keepers say that Type b is a church-lamp, while Types a and c are mosque-lamps; but though this distinction generally holds good, exceptions to the rule can be noticed, and the use seems to depend more on the available method of suspension than on any special religious prejudice. The two beaker-types are hung by means of rings or chains, without a container. The bowl-type is set in a metal holder, so that the rim of the glass appears just above the rim of the metal.

more outplayed sides and a knobbed base¹. No actual specimen of early date is known, but representations of the type on mosaics and frescoes are found, beginning with the mosaics in the dome of the church of S. George at Salonika², which belong to the late 4th or early 5th century (Pl. xxviii, 11). Moreover Rohault de Fleury³, in illustrating an early example of a *pharacanthara* which was found at Orléansville in North Africa and may be dated to the 5th century, assumes that the lamps it carried were of this type. Without specifying actual examples, he says that he has seen such at the Vatican and elsewhere, and that Father de La Croix found others in excavations at Poitiers. A late medieval illustration of the type is quoted by the same author⁴. Actual examples are in use to-day in the Ahmediya mosque in Stambul (Pl. xxviii, 12), and, no doubt, in many other eastern churches. More bowl-like forms with handles for suspension—and therefore more akin to Group 3—also occur. There is an example of uncertain date published in the catalogue of the Fould Collection (Pl. xxviii, 13)⁵, and, once more, a very similar type is in use in the Ahmediya mosque (Pl. xxviii, 14).

Finally mention should be made of a type of beaker of truncated conical shape with ring-handles of glass set loose within strap-handles. Lamm⁶ publishes two examples (Pl. xxviii, 15-16), one of which has five handles, the other four, and identifies them as Syrian ware of the 8th-9th century. These also may have been hanging lamps.

Group 2. Bowl-lamps and subsequent developments from them.

It would be absurd to suggest that all shapes of glass bowls of Late Roman date were used as bowl-lamps. There are a few types, however, found in other parts of the Roman world which are so like the bowl-lamps from Karanis in shape, technique and ornamentation—and therefore in the last two characteristics like the conical lamps too—that it is a fair assumption that they may have served as lamps.

From western Europe examples of such round-bottomed bowls with plain-cut rim are figured by both Morin-Jean⁷ and Kisa⁸, and the type has also been found in the catacombs in Rome⁹; examples from Syria and S. Russia are common and may be seen in the British Museum and in other collections. There is a group of bowls of Late Roman date (Pl. xxix, 19) and of an allied, but much shallower form, which sometimes bear blob decoration, but are more often either entirely plain or else covered with a pictorial design in cut or incised technique¹⁰. We should not have suspected these of being lamps were it not that in the Treasury of S. Mark at Venice some examples of a very similar shape of glass occur (Pl. xxix, 20), one of which is actually mounted as a lamp, with three

¹ Knobbed bases of conical vessels were found at Karanis and are almost certainly to be grouped with this lamp-glass type, but as no complete or nearly complete specimen was found they have been omitted from consideration among the Karanis examples.

² P. 196, n. 2.

³ *Les Muses*, vi, p. 13 and Pl. 138.

⁴ *Op. cit.*, vi, p. 28 and Pl. 143 (Greek MS. at Venice, 15th century).

⁵ A. Chabouillet, *Descr. du cabinet de M. Louis Fould* (1861), p. 86, No. 1538, Pl. xxi.

⁶ *Mittelalterliche Gläser*, I, p. 80; II, Pl. 22, 9 and 10.

⁷ *Op. cit.*, forms 71 and 73; fig. 154 (with horizontal wheel-incisions); fig. 254 (with honeycomb decoration); figs. 299-300 (with added blobs); and pp. 124-6.

⁸ *Op. cit.*, Formentafel, F. 369, G. 387, 406; fig. 144 b and c, and p. 484 (with added blobs); fig. 168 f (with honeycomb decoration).

⁹ Roller, *Les catacombes de Rome*, I, Pl. viii.

¹⁰ Cf. Morin-Jean, *op. cit.*, Form 70, p. 124 and figs. 326-7; Kisa, *op. cit.*, Formentafel G. 388, figs. 262-5 and pp. 653 ff.

chains for suspension. These are all illustrated in Pasini's publication of the Treasure¹, and are probably Early Byzantine, 7th-8th centuries, in date². A fragment of a similar bowl was found at Susa in the topmost levels and is now in the Louvre³. If these are lamps, or perhaps rather lamp-holders, it is possible that the earlier shallow bowls with Christian scenes cut on them served as lamps in churches also.

There is no definite literary or pictorial evidence for this early bowl-lamp type.

At its best, this type can never have been very satisfactory. If it was used as an oil-container, there must have been continual danger of the oil spilling over, and the bowl would be somewhat unstable owing to a lack of weight in its lower part. If it was used as a dish in which to place another container for the oil and wick, the second of these objections would still apply, and further, the inner container would usually be visible from below. For these reasons the simple bowl was almost given up, early in the Byzantine period⁴. It was superseded partly by the lamps in Group 3 below, but also by a type of stemmed bowl, Jerash B with its two main variations, the type with solid stem and the type with hollow stem.

The first of these does not seem to have had a long life or to have been in use over a wide area. Apart from Jerash, it has only been recorded so far at Bethshan, where several examples of solid stems, either beaded, spirally-twisted, or plain, occurred in Byzantine or Early Arab levels⁵.

The second is much commoner and has been found on several sites where it is either contemporary with or slightly later than the Jerash examples. In his excavations in the sanctuary of S. Menas between Alexandria and the Wâdi Naṭrûn, Kaufmann⁶ found numerous examples, not only of this actual type (Pl. xxix, 28), but also of another shape (Pl. xxix, 27), a sort of cross between these stemmed bowls and the earlier conical glasses. The latter shape may be an earlier type, directly developed from the conical by a concurrent broadening of the upper part and a constriction of the lower. The sanctuary was flourishing from the 5th to the 8th century. The pointed lamps, therefore, perhaps date from the earlier part of that period and are a little antecedent to the Jerash examples, while the stemmed lamps are probably later and contemporary with Jerash. At Samarra⁷, too, fragments of the type were found in abundance in 9th-century deposits (Pl. xxix, 29-30), and in Syria it seems to have been very prevalent⁸. The same type has been found in Rome during the excavations in the foundations of the church of S. Saba on the Aventine

¹ Pasini, *Il Tesoro di S. Marco*, Nos. 107, 109 and 110 bis, Pl. 49 and No. 125, Pl. 54.

² So Lamm, *Mittelalterliche Gläser*, 146.

³ Lamm, *op. cit.*, p. 146 and Pl. 52, 12.

⁴ Yet bowls are occasionally used as lamps in Palestine to this day—e.g. a bowl as shallow as the Roman example (Pl. xxix, 19) hangs in the porch of the Armenian church in Jerusalem.

⁵ G. M. Fitzgerald, *Bethshan Excavations, 1921-23, the Arab and Byzantine Levels* (in the press). For advance information on these discoveries the authors are indebted to the kindness of Mr. Fitzgerald.

⁶ C. M. Kaufmann, *Die Menasstadt*, I, pp. 62 and 76 and fig. 15 at p. 53. Unfortunately the illustration does not make it clear whether the stems were hollow or solid, and there is no adequate description of the lamps in the text. In appearance, however, they are more akin to the hollow-stemmed group than to the solid-stemmed.

⁷ Lamm, *Samarra*, p. 33, Nos. 145-7, fig. 26 and Pl. iv.

⁸ Several stem-fragments were found at Bethshan along with those of the solid-stemmed variety, and a similar fragment was found at Ophel in 1928-9. Three complete examples from the Curtis Collection are now in Toledo Museum, and another, from Farah, is published by De Ridder (*op. cit.*, Pl. 30 and pp. 263-4). A stem of another example, with decoration of rolled-in threads, is published by Lamm (*Mittelalterliche Gläser*, p. 100 and Pl. 30, 20). All these are Byzantine or Early Arab in date.

(Pl. xxix, 31)¹, where it probably dates from the Early Middle Ages (certainly before the 12th century).

It was, therefore, in common use all over the Mediterranean world during the Byzantine and Early Arab period. Later examples are also known. Zahn² publishes an interesting example of a pair of them, complete with their glass candelabrum, which are now in the Gans collection in the Berlin Museum (Pl. xxix, 32). They probably belong to the Arab period. They are not quite like the ordinary type, having a higher body and a shorter stem in proportion; they are, however, so similar in shape to a small terracotta vase (Pl. xxix, 33) in the Ashmolean Museum of Late Roman or early medieval date that it is possible that we should interpret this also as a lamp³. Another almost complete specimen, in a heavy, colourless glass, was found during the excavations on Ophel in 1928-9, in débris probably of the 9th or 10th century.

Medieval Italian and French examples are commonly figured. Rohault de Fleury⁴ quotes, among others, 11th-century examples from a manuscript in Troyes library and from another in the Bibliothèque Nationale, and 13th-century examples from other manuscripts in the Bibliothèque Nationale, from stained glass windows in Beauvais and from frescoes in Assisi⁵. Other examples (Pl. xxix, 34), also of 13th-century date, are found in frescoes in the church of S. Pietro at Grado near Pisa which are well illustrated by Soulier⁶. Later, the antiquarian Grimaldi (c. 1560-1623) sketches an example (Pl. xxix, 35) which was still in use in S. Maria Maggiore in Rome in his own time⁷. Lamps of this same type are made at Hebron and used to-day in Palestine, chiefly in churches but occasionally also in mosques (Pl. xxix, 36)⁸. An example was also seen in the church of S. Sophia in Salonika, inset in a glass jar, itself set in a hanging metal lamp; the priest in charge said it came from Vienna, where it was made. And even in England very similar types are made to-day⁹ for use as sanctuary-lamps.

A by-form, perhaps derived from this stemmed-bowl type, and more particularly from the variant with a solid, beaded stem, Jerash B. 1, is found in several Early Arab examples and has an interesting later history. This is a type with, instead of a true stem, a series of offsets or steps gradually diminishing in size towards the base. A 7th-8th-century example (Pl. xxix, 37) is figured by Lamm¹⁰ and the type seems to have been common from the Early Arabic period onwards. An Arab example, of gilt green glass, is now in the Victoria and Albert Museum (Pl. xxix, 38)¹¹. The type has also been used in metal, and

¹ E. Cannizzaro and I. C. Gavini, *Not. Scav.*, 1902, p. 273 and figure. Fragments of twenty lamps and of chains for suspension were found, along with one complete lamp with a triple suspension-chain.

² *Ämtliche Berichte aus den Kgl. Kunstsammlungen*, xxxv (1913-4), p. 116, fig. 55. Gans coll., Altes Museum, No. 246.

³ No. 1885. 572: found in Rome.

⁴ *Op. cit.*, vi, pp. 29-30 and Pls. 145-6 and 158.

⁵ *Op. cit.*, vi, p. 24, fig. on p. 25 and Pl. 143.

⁶ G. Soulier, *Les influences orientales dans la peinture toscane*, Pl. 13.

⁷ Grimaldi's drawing is reproduced by Rohault de Fleury, *op. cit.*, vi, p. 20 and Pl. 141, 6.

⁸ See note 7, p. 201. One hangs in a silver lamp at the gate of the Rock Sanctuary in the mosque of the Dome of the Rock. When questioned, the sheikhs said that in olden days they had more of them and that in the adjacent mosque of the Aqsa many were once set together in an iron chandelier, now replaced by a modern candelabrum.

⁹ *E.g.*, by Messrs. Powell, 100, Wigmore Street, W.

¹⁰ *Mittelalterliche Gläser*, p. 103 and Pl. 32, 13 (with decoration of rolled-in threads).

¹¹ No. 581. 1875. Figured by Dillon, *op. cit.*, Pl. 24, 2. See also p. 156, but the suggestion that it was used inside a mosque-lamp seems untenable, to judge from its size and from the handles with which it is provided. *Cf.* also *op. cit.*, 156-7 for further remarks on the type.

examples of bronze and silver as well as of glass are still current in Egypt (Pl. xxix, 39)¹. Some of these last have designs in openwork, so that they are lamp-holders rather than lamps.

Group 3. Handled bowls.

No example of this type so far known seems to be anterior in date to the Jerash examples, but from that time onwards hanging bowl-lamps of most diverse forms seem to have been in common use: some have flat, pointed or concave bottoms, some have base-rings; some have a plain vertical rim, some have a constricted neck and outplayed rim. Many of them may not have been used as lamps at all, but the fact that very similar types may be found (Pl. xxx, 42) amongst the extraordinary variety of shapes of glass lamps in use in Palestinian and other eastern churches and mosques to-day² suggests that some at any rate were. At Samarra handles and rims were found which are attributed to lamp-glasses of this type by Lamm³. One of his types (Pl. xxx, 43) has a pointed base, and a constricted neck with outplayed rim, and the other (Pl. xxx, 44) has a base-ring, a bulbous body and a vertical neck; but both shapes are very largely conjectural. An interesting Byzantine type (Pl. xxx, 45), a bowl with vertical sides and a base-ring, is in the Treasury of S. Mark at Venice⁴. Dillon⁵ mentions the pointed-base type as occurring in wall-paintings of the 14th century in the chapel of the Arena at Padua, and base-ring types are also depicted in mediaeval Italian wall-paintings⁶.

From this type of hanging bowl was developed in all probability the well-known enamelled mosque-lamp with tall, outplayed neck, bulbous body and base-ring or high outplayed foot. These lamps were suspended from three or more handles affixed to the body⁷. They date from the 13th and 14th centuries. Precursors of the base-ring type of mosque-lamp are found from Byzantine times onwards, and in metal⁸ as well as in glass: in the latter material they have been found both with (Pl. xxx, 46)⁹ and without (Pl. xxx, 47)¹⁰ a wick-tube. The mosque-lamps were usually made without a wick-tube (Pl. xxx, 48), and the glasses are often large: these were used not as lamps themselves, but as "globes" or containers for smaller vessels which held the oil and wick. Examples of the type, not all of them of small dimensions, are, however, found with a wick-tube (Pl. xxx, 49)¹¹, so that in some cases, at least, the type would seem to have been used without an internal vessel.

¹ A. J. Butler, *Ancient Coptic Churches*, II, pp. 71-3, fig. 16 (glass) and fig. 17 (bronze): the bronze example figured by him, and illustrated here, Pl. xxix, 39, is now in the Ashmolean Museum in Oxford (No. 1885. 771).

² See note 7, p. 201. Outside Palestine examples can be seen in S. Sophia in Constantinople and in the Ahmediya mosque in Stambul.

³ *Samarra*, pp. 30 ff. and figs. 23-25.

⁴ Pasini, *op. cit.*, No. 124, Pl. 54.

⁵ *Op. cit.*, 158. The church was decorated by Giotto.

⁶ *E.g.*, in the porch of S. Lorenzo fuori le mura at Rome (13th cent.) and in the crypt of S. Clemente in Rome (11th cent.).

⁷ On mosque-lamps cf. Dillon, *op. cit.*, 150 ff. and Lamm, *Mittelalterliche Gläser*, section 3 (enamelled glasses).

⁸ G. Migeon, *Syria*, 1920 (1) pp. 56 ff., Pl. 7; and another, *id.*, *Manuel d'art musulman*, fig. 182.

⁹ Quibell, *Excavations at Saggara*, I, p. 30 and Pl. 34. Late levels (Byzantine?).

¹⁰ Roller, *Les catacombes de Rome*, I, p. 24 and Pl. 8, 1.

¹¹ *E.g.*, a plain example in Toledo Museum (No. 726-219); cf. Lamm, *Mittelalterliche Gläser*, p. 44 and Pl. 7, 2; and an enamelled example in the Victoria and Albert Museum (No. 330. 1900); cf. Lamm, *op. cit.*, p. 367, Pl. 158, 1 and Dillon, *op. cit.*, Pl. 24, 1.

Very similar lamps to these mosque-lamps are depicted in the frescoes in the crypt of S. Clemente in Rome (11th century) and in other medieval Italian paintings¹, so that the type was not confined to the East. Nor was it confined to hanging lamps; standing examples figure in a communion-scene on a 6th-century silver paten published by Bréhier².

Group 4. Handled cup on stem (Pl. xxx, 50).

The only reasons for suggesting that this type was a lamp are that it was found along with the other types in the Jerash hoards, and that, if it was not a hanging lamp, there seems to be no adequate explanation of the large handles. No parallels for such a lamp in glass³ are known in either ancient or modern times, though it is always possible that future excavations or researches may bring such to light.

Group 5. Candlestick-lamps (Pl. xxx, 51-53).

The small bowls with or without handles and with one or more wick-holders of which numerous fragmentary examples were found at Samarra⁴ do not seem to be paralleled by finds from elsewhere, though Lamm says that the type occurs in contemporary pottery.

Reference has already been made more than once to the different modes of usage of these lamp-glasses. It will be convenient, even if it entails a little repetition, to give a brief description of the various processes of lighting involved.

Sometimes the glasses were used as standing lamps. If they would stand alone, as, for instance, some of the later beaker-lamps and the mosque-lamps would, they were allowed to do so⁵. In other cases some sort of standing bracket was employed. Wooden tripod-stands that might well have been used for holding the conical lamps were found at Karanis, but as no instance is known of a lamp and a tripod-stand being found together, their use as such is still unproven. More often they were hung singly, or else in groups in a candelabrum. All those that have ring-handles attached to their bodies or rims were presumably employed as single lights and hung by chains from a hook on the ceiling or from a bracket jutting out from the wall. The various types recorded in Group 3 must have been hung in this fashion, and also the handled cups on stems, Group 4, if indeed they were lamps at all. Contemporary illustrations in early medieval wall-paintings and manuscripts of this method of hanging lamps are not rare⁶. But some of the handleless types were also used as single hanging lights. With the stemmed bowls found in the church of S. Saba in Rome was found a triple chain for suspension with hooks which clutched the rim of the glass: and early medieval illustrations of the same

¹ Soulier, *op. cit.*, pp. 59-62 and figs. 17-8. Other examples, both eastern and western, are figured by Rohault de Fleury, *op. cit.*, vi, Pls. 145-7.

² *Gaz. des Beaux Arts*, 1920 (1), pp. 176 ff. and Pl. opp. p. 176. These may be meant to represent metal lamps, for there is no attempt to show the flames or oil inside the vessel, and an actual example in metal is illustrated by Mrs. Devonshire in *Burl. Mag.*, XLVII (1925), pp. 99 ff. Pl. i, b.

³ On the tomb of Adam's Head in the church of the Holy Sepulchre at Jerusalem a lamp-holder of this shape in open-work metal is to be seen, but this is no evidence that the type has ever been made in glass.

⁴ Lamm, *Samarra*, pp. 34-5 and fig. 27.

⁵ Cf. for this method the lamps standing on a ledge depicted on a silver paten, Bréhier, *ibid.*

⁶ Cf., e.g., the paintings in the crypt of S. Clemente in Rome; Rohault de Fleury, *op. cit.*, vi, Pls. 141, 145, 147; Soulier, *op. cit.*, fig. 17.

type of suspension are known¹. In other cases, and probably much more frequently, these stemmed bowls, if used singly, were suspended in pierced metal rings hung on three chains². The unstemmed bowls were often used in this same manner—there is a fine example with metal holder and chains complete in the Treasury of S. Mark³—so, too, were some of the beaker-lamps.

But this mode of suspending the lamps singly was only useful when some special object was to be lighted up, for example a statue or an altar, or else where the space to be illuminated was comparatively small, *e.g.* in niches or small chapels. For general purposes, and especially for lighting the central part of a church, some system of grouping the lights was necessary. This was attained by the use of multiple chandeliers of metal, often of the greatest magnificence and of huge size⁴. The earliest type consists of a plain ring of metal either itself pierced with holes for the reception of the lamps or else with pierced arms projecting from it. Numerous examples of these are known, dating from the 4th century onwards⁵. A chandelier of this simple form was actually found at Jerash by Mr. Horsfield during repairs to the Propylaea, and a complete set of three bronze chains for suspension was found along with the fragments of lamps by the British School—Yale Expedition. As an experiment, these two finds were combined and three repaired lamps of the stemmed-bowl variety were inserted in the chandelier and lit with olive oil. Much more elaborate types of chandelier are described by Paul the Silentiary as being in use in S. Sophia in the 6th century, and many variations are illustrated from the following centuries in medieval paintings and manuscripts⁶. Lamps of both Groups 1 and 2 were used in these brackets, but more commonly the conical and beaker-types of Group 1, and it is the beaker-lamp that is most frequently found in chandeliers in eastern churches to-day; the stemmed bowls are more generally used as single lights.

All these lamps were and are lit by means of oil floating on water, but the manner of holding the wick has varied. One common system now is to use cotton wicks set in holders made of cork and tin which float on the oil. In Palestine such wicks are used in the bowls with hollow stems, and in beaker- and bowl-forms in churches and mosques, and no doubt there was some ancient equivalent for them. But at Jerash another method was used. A number of fragments of metal wick-holders were found. These consist of a strip of bronze bent into an S-shape; one end was hung over the rim of the glass and the other was folded upwards in the centre, inside, and bent at the end to grasp the wick, which was thus held down in the oil. The purpose of these strips of bronze was definitely proved by the discovery that wick-holders of precisely the same kind are to-day in use in glass Sabbath-lamps in Jewish houses in the Old City of Jerusalem⁷, but no other examples from antiquity are recorded, nor have such wick-holders been noticed in modern churches or mosques. A third system was also in use from early days which shows an

¹ Cf., *e.g.*, some of the paintings in the church of S. Lorenzo fuori le mura in Rome, and Rohault de Fleury, *op. cit.*, Pls. 146, 158.

² Cf. again some of the S. Lorenzo paintings, and *op. cit.*, fig. at p. 23 and Pl. 145 (top right).

³ Pasini, *op. cit.*, Pl. 54, no. 125.

⁴ Various Latin names for these lamp-brackets have been handed down, all of which doubtless once had distinct meanings. They are called, *e.g.*, *polycandela*, *coronae*, *pharae*, *coronae pharales*, but it does not seem to be possible now to equate any of these terms with a definite type of bracket.

⁵ Cf. Wulff, *Altchristliche und Mittelalterliche Bildwerke*, I, p. 211, Nos. 1004-7 and Pls. 48 and 49, and *refa. ad. loc.*

⁶ Cf. Rohault de Fleury, *op. cit.*, VI, Pls. 142-3.

⁷ The modern wick-holders are cut out of a soft tin tube and then bent into the S-shape.

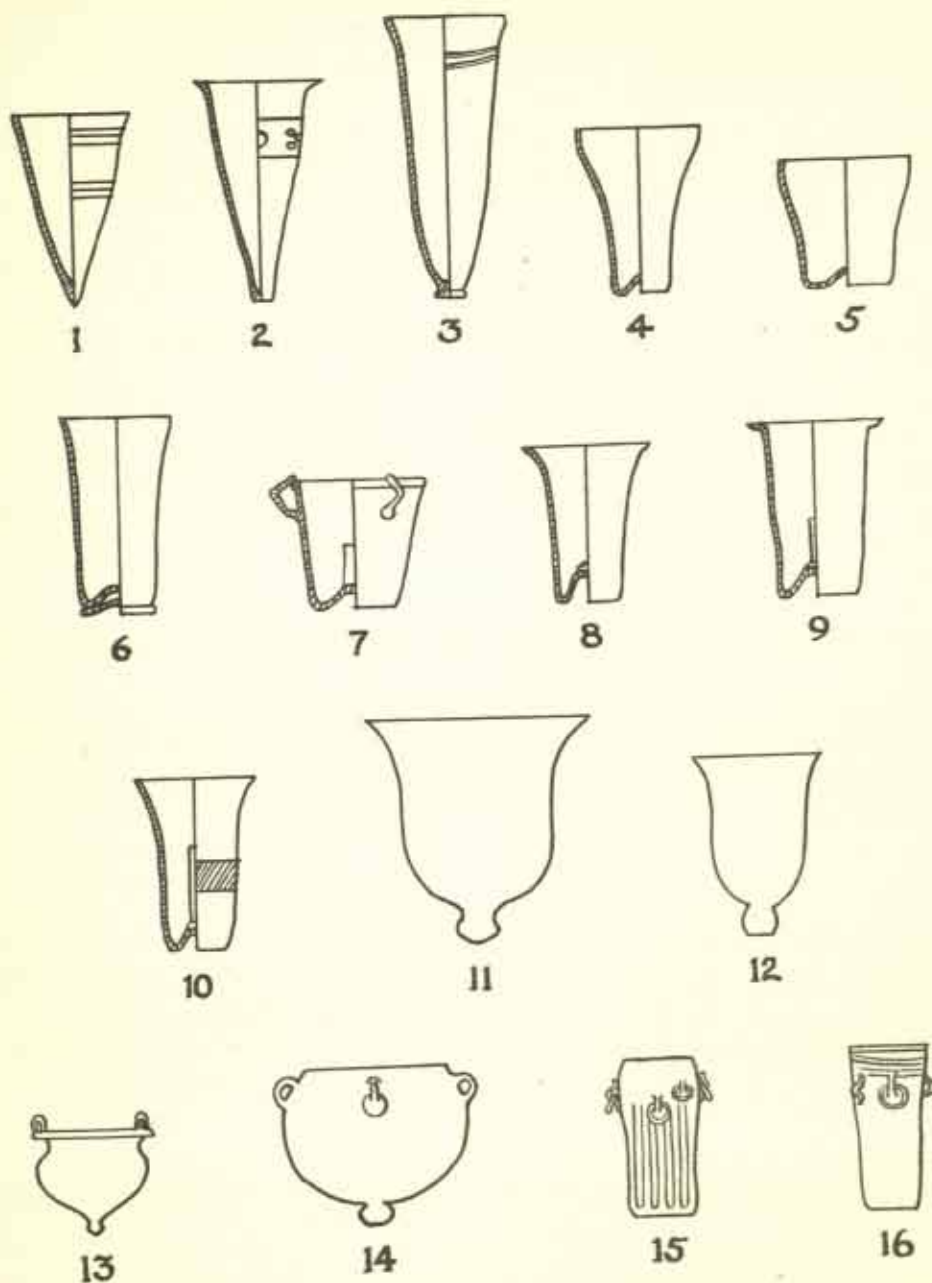
advance in efficiency in comparison with both of these—the use of a vertical glass tube in the centre of the vessel fixed to the base with molten glass¹. The idea is an obvious adaptation from the candlestick, which was known in Roman days². The earliest known examples of this are the Gezer and Ophel lamps (p. 201), and in Arab times it became more and more common, especially in beaker-lamps, in which, to-day, it seems to be the rule rather than the exception. Lastly, some of the larger of these glasses, notably the enamelled mosque-lamps, were often employed rather as lamp-shades than as actual lamps. Small glass or metal vessels were in that case suspended inside the large glasses, and in those interior vessels the water, oil and wick were placed.

INDEX TO PLATES XXVIII-XXX.

- PLATE XXVIII. 1-3. Karanis.
4-5. Jerash.
6. Arabic enamelled beaker (after Read, *Archaeologia*, LVIII, 218).
7. Byzantine, Gezer (after Macalister).
8, 9. Modern Palestinian, Qandil Bawwâbi.
10. 19th-cent. Egyptian (after Lane).
11. Early Byzantine, from fresco, Church of S. George, Salonika.
12. Modern, Ahmediya Mosque, Stambul.
13. Fould Collection (after Chabouillet).
14. Modern, Ahmediya Mosque, Stambul.
15, 16. Early Arabic, with ring-handles (after Lamm).
PLATE XXIX. 17. Karanis.
18. Romano-Egyptian, Askren Coll., Ann Arbor.
19. Late Roman shallow bowl (after Morin-Jean).
20. Byzantine, Treasury of S. Mark (after Pasini).
21-26. Jerash.
27, 28. Byzantine, Sanctuary of S. Menas (after Kaufmann).
29, 30. 9th cent., Samarra (after Lamm).
31. Early Medieval (after Cannizzaro and Gavini).
32. Arabic, Gans Coll. (after Zahn).
33. Early Medieval; terracotta lamp (?) in Ashmolean Museum.
34. Medieval, from fresco, Church of S. Pietro, Grado (after Soulier).
35. Medieval, S. Maria Maggiore (Grimaldi) (after Rohault de Fleury).
36. Modern Palestinian, Qandil Bazzâka.
37. Early Arabic (after Lamm).
38. Arabic, Victoria and Albert Museum.
39. Modern Coptic bronze lamp, Ashmolean Museum.
PLATE XXX. 40, 41. Jerash.
42. Modern Palestinian, Qandil Kâfi.
43, 44. 9th cent., Samarra (after Lamm).
45. Early Byzantine, Treasury of S. Mark (after Pasini).
46. Early Christian, Catacombs (after Roller).
47. Byzantine, Sakğarah (after Quibell).
48, 49. Arabic mosque-lamps, British Museum.
50. Jerash.
51-53. 9th cent., Samarra candlesticks (after Lamm).

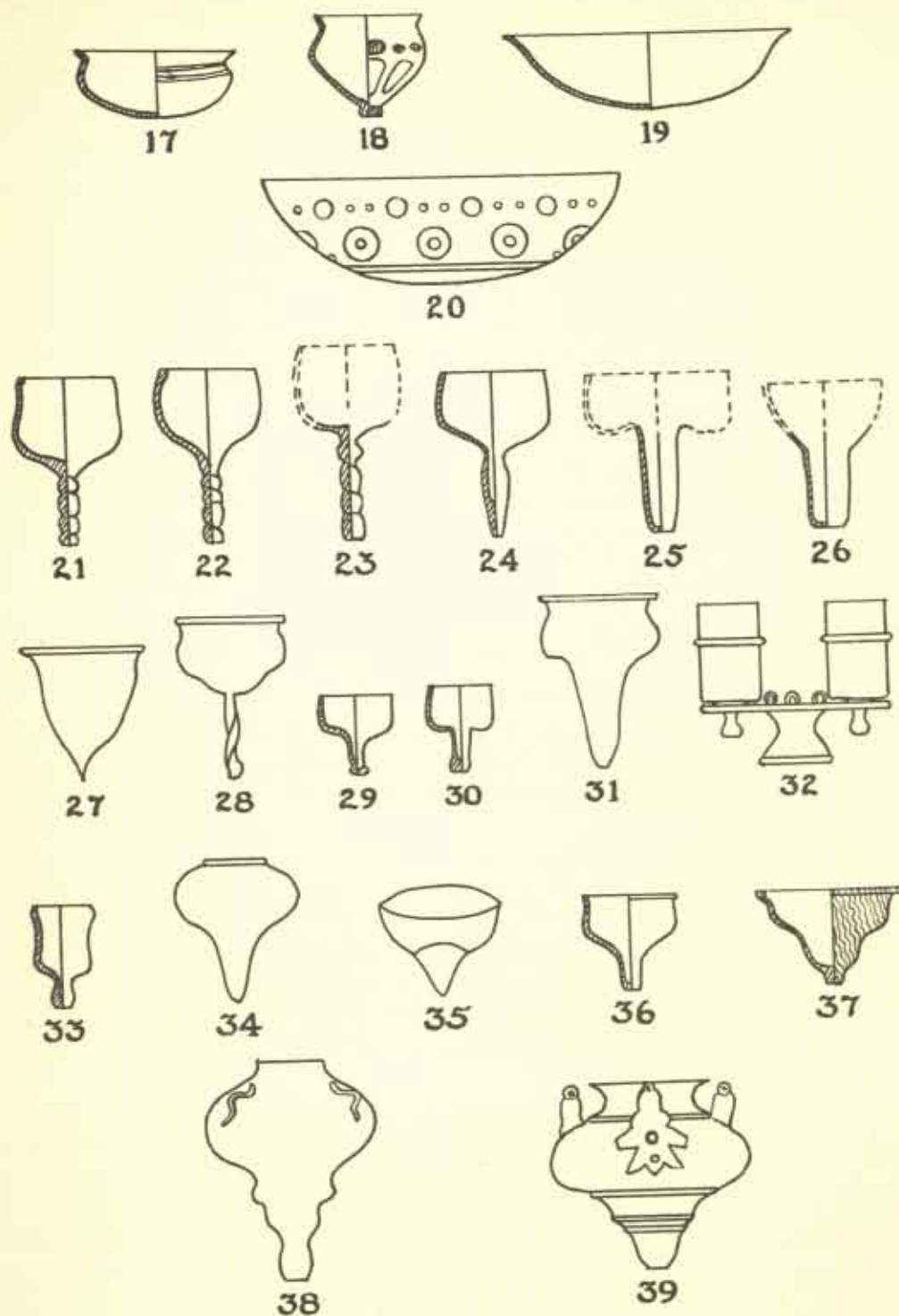
¹ The wick used in Palestine in such vessels is a wisp of cotton wound round a strip of reed which stands upright in the glass tube.

² Cf. Cagnat and Chapot, *Manuel d'archéologie romaine*, II, pp. 466-7 and figs. 660-2.



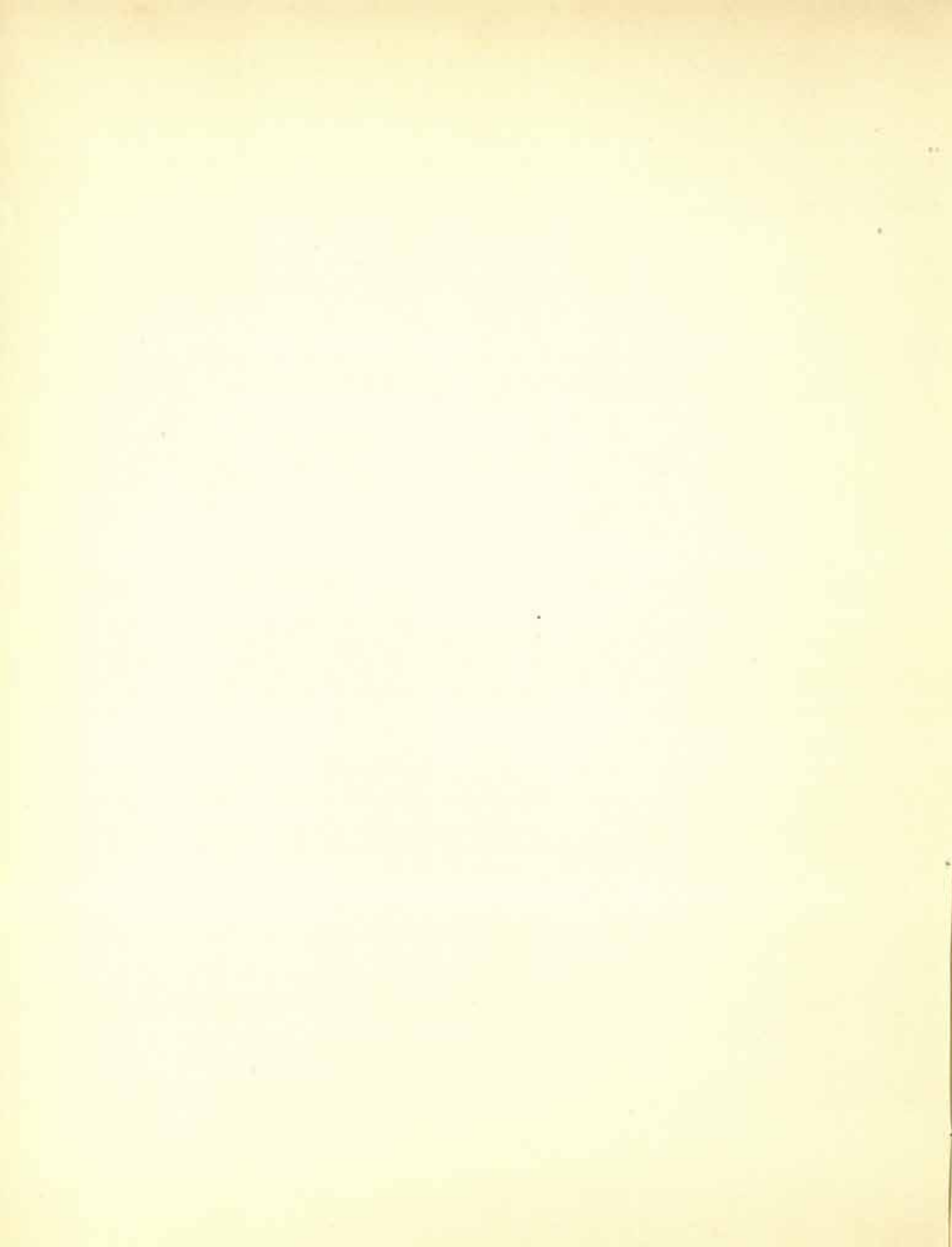
Vases used as lamps.

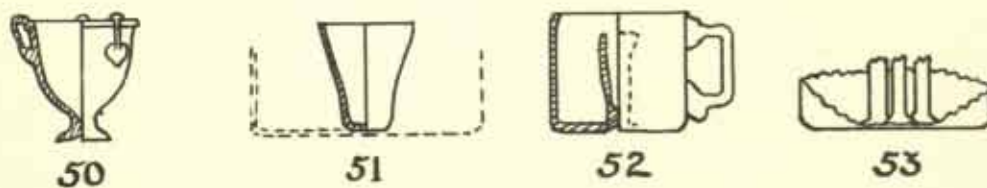
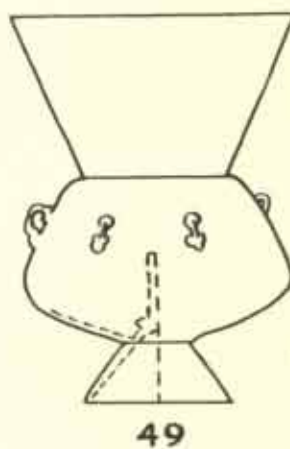
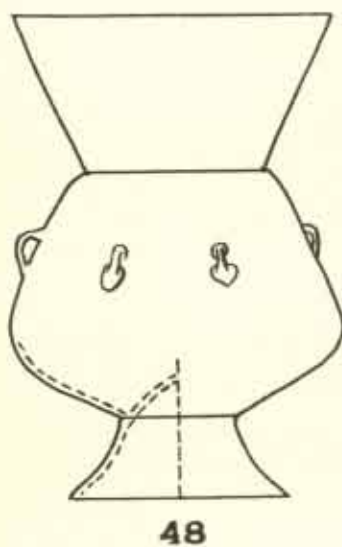
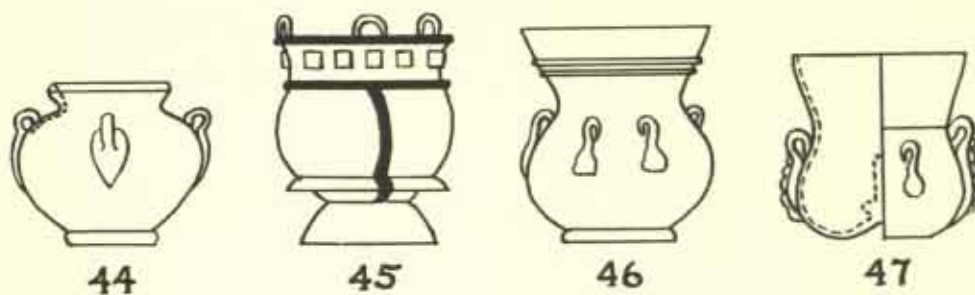
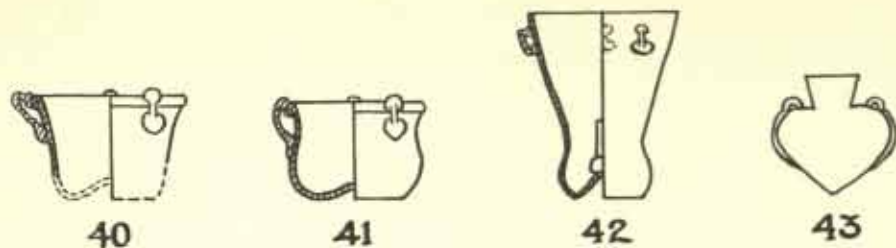
Scale 1, except 10, 11, 12 & 14, which are not drawn to scale.



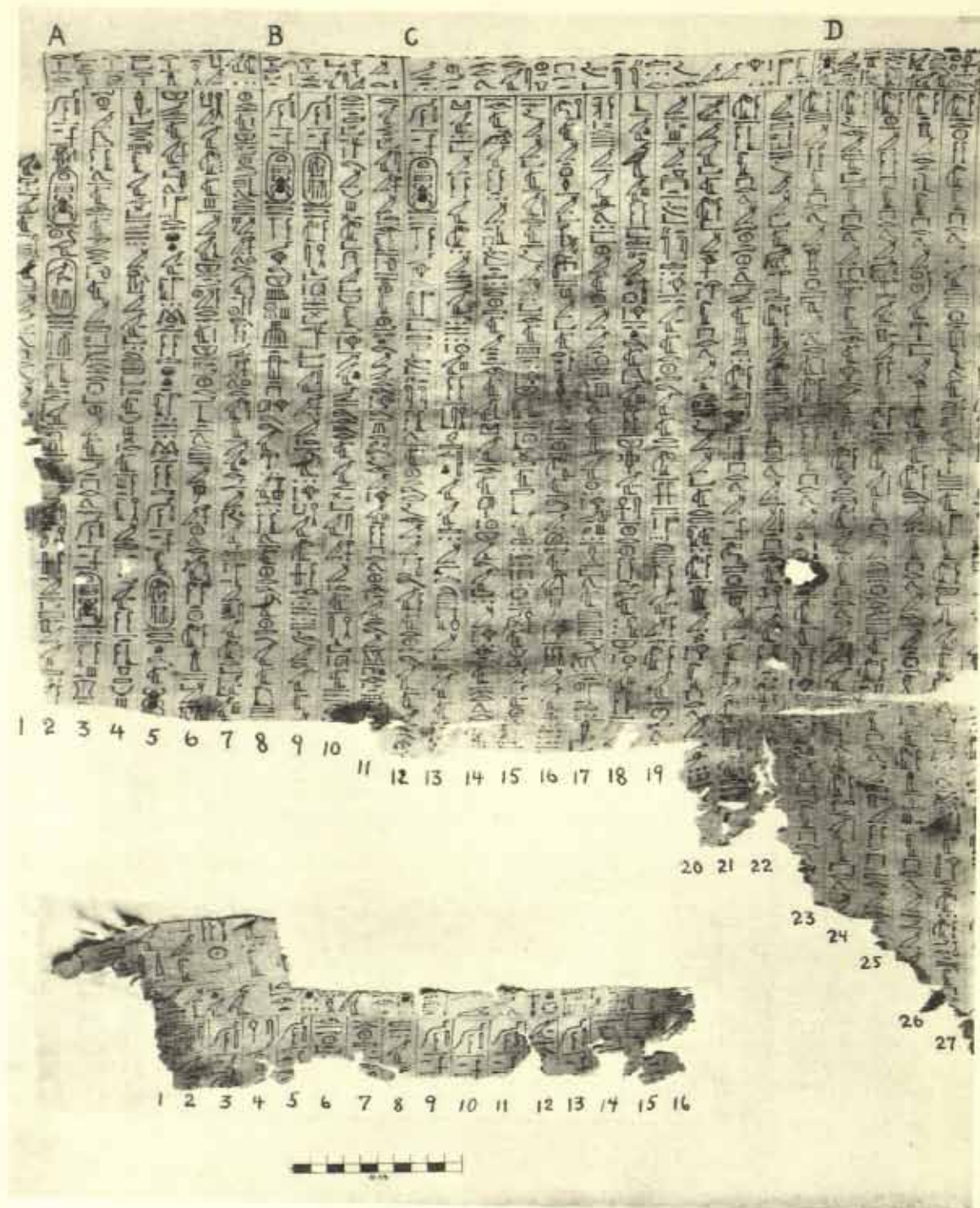
Vases used as lamps.

Scale $\frac{1}{2}$, except 27-8, 31, 34-5, which
are not drawn to scale.



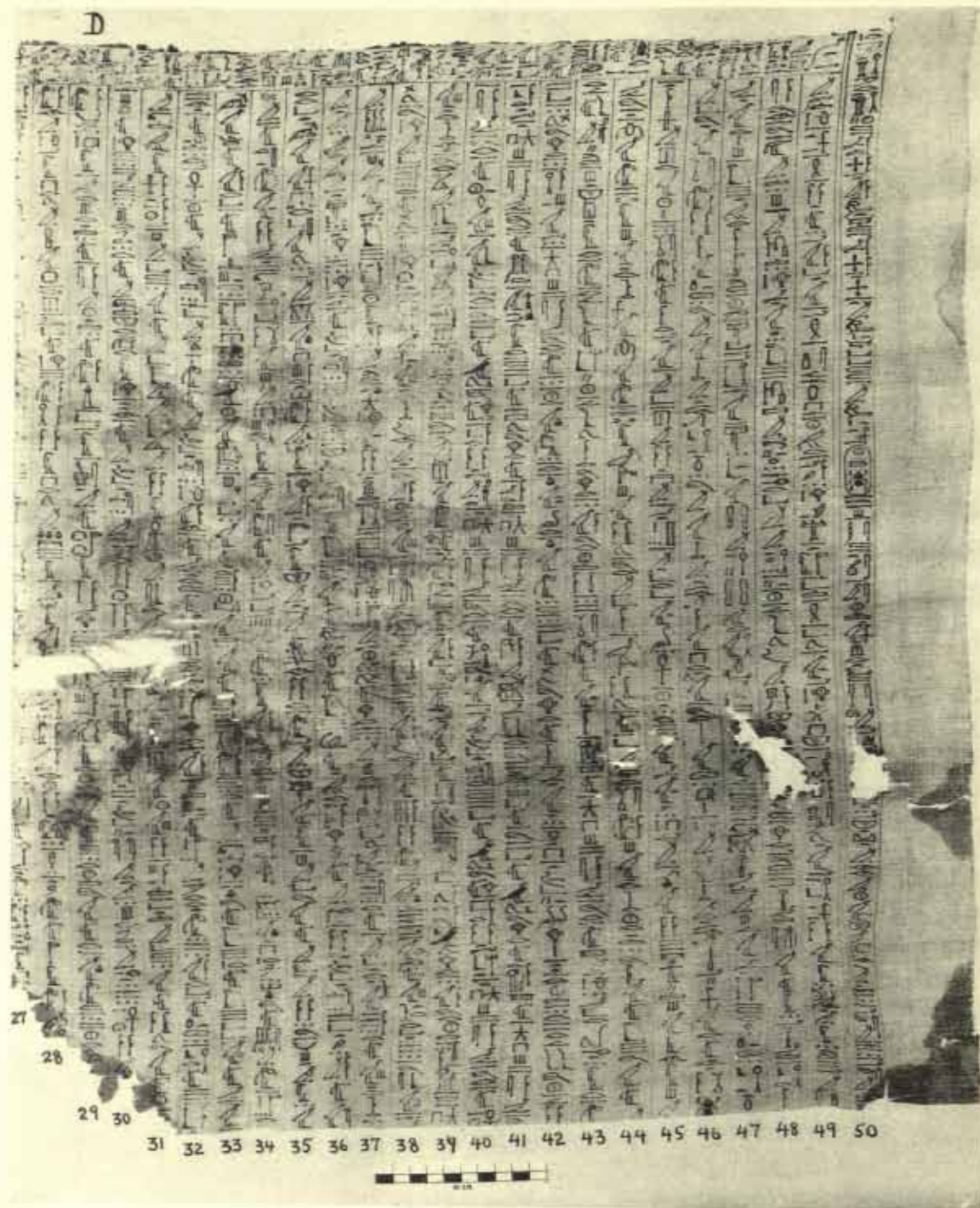


Vases used as lamps.
Scale $\frac{1}{2}$, except 43, 44 & 46, which are not drawn to scale.



Inscribed mummy linen of Tuthmosis III.

Scale c. $\frac{1}{4}$.



Inscribed mummy linen of Tuthmosis III.

Scale c. $\frac{1}{4}$.

A FRAGMENT FROM THE MUMMY WRAPPINGS OF TUTHMOSIS III

By DOWS DUNHAM

With Plates xxxi-xxxvi.

Early in the present year the Boston Museum of Fine Arts obtained as a loan from Mr. Horace L. Mayer of Boston a large fragment of linen inscribed with hieroglyphic texts from the Book of the Dead. Mr. Mayer has generously given his consent to the publication of this document, since it is thought to be of considerable interest on philological grounds.

The principal fragment (Register No. 82.31) measures 111 cm. in width, by 63.5 cm. in height, and is bordered by torn edges above, below, and on the left. On the right is a selvedge bounded by 5 to 6 cm. of uninscribed surface. The texts are arranged as follows (Pls. xxxi-xxxii): at the top, which is torn along an approximately straight line, is a single band of inscription reading from left to right (the signs face right), and subdivided into four sections (A-D) by vertical lines. Below A-D are parts of 49 vertical columns of inscription reading down and from left to right, the hieroglyphs again facing right. All columns except No. 1 are complete at the top, but none are preserved to their full length. At the extreme right is Column 50, divided from the rest by a double line and extending the full height of the fragment—it is complete at the top but not at the bottom. With the principal fragment is also a smaller piece from the same object (Pl. xxxi, below), showing a section of horizontal inscription (as A-D) and the upper ends of 16 vertical columns. Above the horizontal band are the lower ends of 6 vertical columns from a group higher up. Although this fragment does not fit on to the larger piece, it seems clear that its proper place is to the left of it.

There is no doubt that this inscription is a part of the mummy wrappings of Tuthmosis III found in the Dêr el-Bahri cache, the major portion of which is in the Cairo Museum. Naville, in *Todtenbuch*, Einleitung, 76, Cb, says of the Cairo inscription: "Diese wertvolle Urkunde besteht aus verschiedenen Abtheilungen, welche durch horizontale Striche getrennt sind. *Leider fehlt der untere Theil*" (italics mine). On p. 77 he notes certain peculiarities of orthography, peculiarities found in the Mayer fragments also. The object came into the possession of M. Clemente Maraini some time prior to 1885, and passed thence into the collection of Vassalli Bey, from whose heirs Mr. Mayer acquired it about three years ago. In 1885 a photograph of this text was sent to the Berlin Museum by Maraini, and the present owner has a letter written to Maraini by Professor Eрман on the subject. The great German Egyptologist recognized the object as a fragment of the Tuthmosis III wrappings from the Dêr el-Bahri cache, and spoke of its value for the study of the religious texts because of its early and exact dating. He went on to comment on the contents as follows: "Du reste il y a une chose curieuse à remarquer en votre manuscrit. Il y a dans les chapitres qu'il contient quelques passages

qu'un roi ne pourrait dire de lui-même à juste titre. Par exemple le mort jure devant Osiris qu'il n'a jamais ordonné la mort d'un homme et on lui assure qu'il trouvera l'amitié du roi et de ses familiers. C'est donc destiné pour un particulier et on s'attend à ce que ces passages aient été changés en écrivant ce livre sur la toile du roi. Mais il n'en est rien, le livre était trop saint pour qu'on osât d'y changer un mot, et c'est ainsi que ce roi guerrier jure de n'avoir jamais tué un homme¹." (See line 15 of our text.)

The inscription is reproduced photographically on Pls. xxxi, xxxii (the smaller fragment inserted at the foot of Pl. xxxi to the same scale). Pls. xxxiii-xxxvi give a transcription of the texts on the main fragment, together with indications of the principal variations from two of the well-known published versions, namely the Turin Papyrus (Lepsius' *Todtenbuch*) and Budge's *Book of the Dead*, "The Chapters of Coming Forth by Day." This has been done with a view to ready reference and comparison.

The chapters represented are indicated below.

Main Fragment.

- A Titles of Chapters 22, 23, and 24.
- B Titles of Chapters 21 and 90.
- C Title of Chapter 125.
- D from text of Chapter 154.
- 1 from text of Chapter 1.
- 2-3 from text of Chapter 22.
- 3-5 from text of Chapter 23.
- 5-7 from text of Chapter 24.
- 8 from text of Chapter 21.
- 9-11 from text of Chapter 90.
- 12-49 from text of Chapter 125.
- 50 from Pyramid Texts; ed. Sethe, 52, 53.

Small Fragment.

- Horizontal text over 1-4 Title of Chapter 83(?).
- Horizontal text over 5-7 Title of Chapter 84.
- Horizontal text over 8-9 Title of Chapter 86.
- Horizontal text over 14-15 Title of Chapter 105.
- 3-4 from text of Chapter 83(?).
- 5-8 from text of Chapter 84.
- 9 from text of Chapter 86(?).
- 13-15 from text of Chapter 105.

Other portions are too incomplete for identification.

¹ It should be noted that this quotation is from a letter written 46 years ago, that Professor Erman wrote it after examination of a photograph only, and that it was intended to make clear to one who knew nothing of Egyptology the value of the document in his possession.

T = Turin Papyrus (Lepsius Totdenbuch) B = Budge, Book of the Dead, "The Chapters of Coming Forth by Day": Text.
A-D = Boston Text, horizontal lines at top. 1-50 = Boston Text, vertical columns, left to right.
In T and B, only the differences from the Boston Text are indicated. ← → indicates continuous text.

T.22 B.221	T.23 B.231	T.24 B.241	T.25 B.251	T.26 B.261	T.27 B.271
A 1000 1000 1000 1000 1000 1000					
B 1000 1000 1000 1000 1000 1000					
C 1000 1000 1000 1000 1000 1000					
D 1000 1000 1000 1000 1000 1000					
E 1000 1000 1000 1000 1000 1000					
F 1000 1000 1000 1000 1000 1000					
G 1000 1000 1000 1000 1000 1000					
H 1000 1000 1000 1000 1000 1000					
I 1000 1000 1000 1000 1000 1000					
J 1000 1000 1000 1000 1000 1000					
K 1000 1000 1000 1000 1000 1000					
L 1000 1000 1000 1000 1000 1000					
M 1000 1000 1000 1000 1000 1000					
N 1000 1000 1000 1000 1000 1000					
O 1000 1000 1000 1000 1000 1000					
P 1000 1000 1000 1000 1000 1000					
Q 1000 1000 1000 1000 1000 1000					
R 1000 1000 1000 1000 1000 1000					
S 1000 1000 1000 1000 1000 1000					
T 1000 1000 1000 1000 1000 1000					
U 1000 1000 1000 1000 1000 1000					
V 1000 1000 1000 1000 1000 1000					
W 1000 1000 1000 1000 1000 1000					
X 1000 1000 1000 1000 1000 1000					
Y 1000 1000 1000 1000 1000 1000					
Z 1000 1000 1000 1000 1000 1000					

Text from mummy linen of Tuthmosis III, with variants.
Lines A-D and columns 1-11.

T. 125a.1 B. 125.5 (R. p. Nu)	T. 125a.2 B. 125.5 (R. p. Nu)	T. 125a.3 B. 125.5 (R. p. Nu)	T. 125a.4 B. 125.5 (R. p. Nu)	T. 125a.5 B. 125.5 (R. p. Nu)	T. 125a.6 B. 125.5 (R. p. Nu)	T. 125a.7 B. 125.5 (R. p. Nu)	T. 125a.8 B. 125.5 (R. p. Nu)	T. 125a.9 B. 125.5 (R. p. Nu)	T. 125a.10 B. 125.5 (R. p. Nu)	T. 125a.11 B. 125.5 (R. p. Nu)	T. 125a.12 B. 125.5 (R. p. Nu)	T. 125a.13 B. 125.5 (R. p. Nu)	T. 125a.14 B. 125.5 (R. p. Nu)	T. 125a.15 B. 125.5 (R. p. Nu)	T. 125a.16 B. 125.5 (R. p. Nu)	T. 125a.17 B. 125.5 (R. p. Nu)	T. 125a.18 B. 125.5 (R. p. Nu)	T. 125a.19 B. 125.5 (R. p. Nu)	T. 125a.20 B. 125.5 (R. p. Nu)	T. 125a.21 B. 125.5 (R. p. Nu)	T. 125a.22 B. 125.5 (R. p. Nu)	T. 125a.23 B. 125.5 (R. p. Nu)	T. 125a.24 B. 125.5 (R. p. Nu)	T. 125a.25 B. 125.5 (R. p. Nu)	T. 125a.26 B. 125.5 (R. p. Nu)	T. 125a.27 B. 125.5 (R. p. Nu)	T. 125a.28 B. 125.5 (R. p. Nu)	T. 125a.29 B. 125.5 (R. p. Nu)	T. 125a.30 B. 125.5 (R. p. Nu)	T. 125a.31 B. 125.5 (R. p. Nu)	T. 125a.32 B. 125.5 (R. p. Nu)	T. 125a.33 B. 125.5 (R. p. Nu)	T. 125a.34 B. 125.5 (R. p. Nu)	T. 125a.35 B. 125.5 (R. p. Nu)	T. 125a.36 B. 125.5 (R. p. Nu)	T. 125a.37 B. 125.5 (R. p. Nu)	T. 125a.38 B. 125.5 (R. p. Nu)	T. 125a.39 B. 125.5 (R. p. Nu)	T. 125a.40 B. 125.5 (R. p. Nu)	T. 125a.41 B. 125.5 (R. p. Nu)	T. 125a.42 B. 125.5 (R. p. Nu)	T. 125a.43 B. 125.5 (R. p. Nu)	T. 125a.44 B. 125.5 (R. p. Nu)	T. 125a.45 B. 125.5 (R. p. Nu)	T. 125a.46 B. 125.5 (R. p. Nu)	T. 125a.47 B. 125.5 (R. p. Nu)	T. 125a.48 B. 125.5 (R. p. Nu)	T. 125a.49 B. 125.5 (R. p. Nu)	T. 125a.50 B. 125.5 (R. p. Nu)	T. 125a.51 B. 125.5 (R. p. Nu)	T. 125a.52 B. 125.5 (R. p. Nu)	T. 125a.53 B. 125.5 (R. p. Nu)	T. 125a.54 B. 125.5 (R. p. Nu)	T. 125a.55 B. 125.5 (R. p. Nu)	T. 125a.56 B. 125.5 (R. p. Nu)	T. 125a.57 B. 125.5 (R. p. Nu)	T. 125a.58 B. 125.5 (R. p. Nu)	T. 125a.59 B. 125.5 (R. p. Nu)	T. 125a.60 B. 125.5 (R. p. Nu)	T. 125a.61 B. 125.5 (R. p. Nu)	T. 125a.62 B. 125.5 (R. p. Nu)	T. 125a.63 B. 125.5 (R. p. Nu)	T. 125a.64 B. 125.5 (R. p. Nu)	T. 125a.65 B. 125.5 (R. p. Nu)	T. 125a.66 B. 125.5 (R. p. Nu)	T. 125a.67 B. 125.5 (R. p. Nu)	T. 125a.68 B. 125.5 (R. p. Nu)	T. 125a.69 B. 125.5 (R. p. Nu)	T. 125a.70 B. 125.5 (R. p. Nu)	T. 125a.71 B. 125.5 (R. p. Nu)	T. 125a.72 B. 125.5 (R. p. Nu)	T. 125a.73 B. 125.5 (R. p. Nu)	T. 125a.74 B. 125.5 (R. p. Nu)	T. 125a.75 B. 125.5 (R. p. Nu)	T. 125a.76 B. 125.5 (R. p. Nu)	T. 125a.77 B. 125.5 (R. p. Nu)	T. 125a.78 B. 125.5 (R. p. Nu)	T. 125a.79 B. 125.5 (R. p. Nu)	T. 125a.80 B. 125.5 (R. p. Nu)	T. 125a.81 B. 125.5 (R. p. Nu)	T. 125a.82 B. 125.5 (R. p. Nu)	T. 125a.83 B. 125.5 (R. p. Nu)	T. 125a.84 B. 125.5 (R. p. Nu)	T. 125a.85 B. 125.5 (R. p. Nu)	T. 125a.86 B. 125.5 (R. p. Nu)	T. 125a.87 B. 125.5 (R. p. Nu)	T. 125a.88 B. 125.5 (R. p. Nu)	T. 125a.89 B. 125.5 (R. p. Nu)	T. 125a.90 B. 125.5 (R. p. Nu)	T. 125a.91 B. 125.5 (R. p. Nu)	T. 125a.92 B. 125.5 (R. p. Nu)	T. 125a.93 B. 125.5 (R. p. Nu)	T. 125a.94 B. 125.5 (R. p. Nu)	T. 125a.95 B. 125.5 (R. p. Nu)	T. 125a.96 B. 125.5 (R. p. Nu)	T. 125a.97 B. 125.5 (R. p. Nu)	T. 125a.98 B. 125.5 (R. p. Nu)	T. 125a.99 B. 125.5 (R. p. Nu)	T. 125a.100 B. 125.5 (R. p. Nu)
----------------------------------	----------------------------------	----------------------------------	----------------------------------	----------------------------------	----------------------------------	----------------------------------	----------------------------------	----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	------------------------------------

Text from mummy linen of Tuthmosis III, with variants.
Columns 11-27.

T25 11-12-2002 2002-11-12		T25 11-12-2002 2002-11-12	
B25 11-12-2002 2002-11-12		B25 11-12-2002 2002-11-12	
10-12-2002 2002-11-12		28-12-2002 2002-11-12	
T 11-12-2002 2002-11-12		T 11-12-2002 2002-11-12	
B 11-12-2002 2002-11-12		B 11-12-2002 2002-11-12	
29-12-2002 2002-11-12		29-12-2002 2002-11-12	
T and there a different test.		T Not represented.	
B 11-12-2002 2002-11-12		B 11-12-2002 2002-11-12	
30-12-2002 2002-11-12		30-12-2002 2002-11-12	
T 11-12-2002 2002-11-12		T 11-12-2002 2002-11-12	
B 11-12-2002 2002-11-12		B 11-12-2002 2002-11-12	
31-12-2002 2002-11-12		31-12-2002 2002-11-12	
T 11-12-2002 2002-11-12		T 11-12-2002 2002-11-12	
B 11-12-2002 2002-11-12		B 11-12-2002 2002-11-12	
32-12-2002 2002-11-12		32-12-2002 2002-11-12	
T 11-12-2002 2002-11-12		T 11-12-2002 2002-11-12	
B 11-12-2002 2002-11-12		B 11-12-2002 2002-11-12	
33-12-2002 2002-11-12		33-12-2002 2002-11-12	
T 11-12-2002 2002-11-12		T 11-12-2002 2002-11-12	
B 11-12-2002 2002-11-12		B 11-12-2002 2002-11-12	
34-12-2002 2002-11-12		34-12-2002 2002-11-12	
T 11-12-2002 2002-11-12		T 11-12-2002 2002-11-12	
B 11-12-2002 2002-11-12		B 11-12-2002 2002-11-12	
35-12-2002 2002-11-12		35-12-2002 2002-11-12	
T 11-12-2002 2002-11-12		T 11-12-2002 2002-11-12	
B 11-12-2002 2002-11-12		B 11-12-2002 2002-11-12	
36-12-2002 2002-11-12		36-12-2002 2002-11-12	
T 11-12-2002 2002-11-12		T 11-12-2002 2002-11-12	
B 11-12-2002 2002-11-12		B 11-12-2002 2002-11-12	
37-12-2002 2002-11-12		37-12-2002 2002-11-12	
T 11-12-2002 2002-11-12		T 11-12-2002 2002-11-12	
B 11-12-2002 2002-11-12		B 11-12-2002 2002-11-12	
38-12-2002 2002-11-12		38-12-2002 2002-11-12	
T 11-12-2002 2002-11-12		T 11-12-2002 2002-11-12	
B 11-12-2002 2002-11-12		B 11-12-2002 2002-11-12	

Text from mummy linen of Tuthmosis III, with variants.
Columns 27-38.

TUSK 39-40-41-42-43-44-45-46-47-48-49-50		11	39-40-41-42-43-44-45-46-47-48-49-50	12
39				
40				
41				
42				
43				
44				
45				
46				
47				
48				
49				
50				

Text from mummy linen of Tuthmosis III, with variants.
Columns 39-50.

CEREMONIAL GAMES OF THE NEW KINGDOM

By JOHN A. WILSON

With Plates xxxvii-xxxviii.

The Oriental Institute of the University of Chicago is publishing the Audience Window in the first court of the temple of Medinet Habu in Volume II, Pls. cxi-cxii, of the series descriptive of that temple¹. In working over the scenes of wrestling and single-stick contests below the window we were interested to note a certain consistency with parallel scenes elsewhere. This article touches on the scope and technique of the games and discusses the texts accompanying the scenes.

We have noted the following scenes of ceremonial games in the New Kingdom, (1) Medinet Habu (also published by Wreszinski, *Atlas*, II, 158, 158a, and by Meyer, *Darstellungen der Fremdvölker*, 335-345); (2) Ramesses II, as described below; (3) Theban Tomb 19, probably early Nineteenth Dynasty (Rosellini, *Mon. Civ.*, 103)²; (4) Tomb of Merire II, Tell el-'Amarnah (Davies, *El Amarna*, II, 40 and Pls. xxxvii-xxxviii); (5) Cairo Ostrakon 25132, from the tomb of Ramesses VI (Dareasy, *Ostraca*, Pl. xxv, 26). Here are five instances in a range of two hundred years.

In the 'Amarnah scene the king appears in public on his throne to receive the tribute of the South. In celebration of the event Egyptians break into wrestling, boxing, and single-stick bouts. Pl. xxxvii, figs. 1-6, taken from Davies's publication and divided into separate contests, show these combats.

The ostrakon in the Cairo Museum (Pl. xxxvii, fig. 7) shows two Egyptians beginning a wrestling bout. Text 5 (Pl. xxxviii) in hieroglyphs accompanies the scene. The phrase "in the presence of Pharaoh" may be taken to link up this fragment with its parallels: games at an appearance of the king³.

In Theban Tomb 19 the combats are held before a shrine of the deified king Tuthmosis III. Above, two men are engaged in a single-stick bout (Pl. xxxvii, fig. 8). Below, two Egyptians are beginning a wrestling bout (Fig. 9); one addresses text 1+6 (Pl. xxxviii) to his opponent. Below them and to the right, a pair has just completed a wrestling match (Pl. xxxvii, fig. 10). The victor faces the shrine in the attitude of triumph and utters text 8 (Pl. xxxviii). It is interesting to find these games in honour of a dead king⁴. Doubtless the ancient Egyptians, like the modern, seized the occasion of any festival for athletic contests. We consider here only the games at the appearance of a king, perhaps more formal, skilled, and memorable than local *fantaziât*, and so the only games of which records have descended to us.

¹ H. H. Nelson and associates, *Medinet Habu. II. Later historical records of Ramses III.*

² Much of the scene is still clear on the wall, but the texts have almost entirely perished; cf. Wreszinski, *Atlas*, I, 118. The games are finely delineated by Davies (after Hay) in *Metropolitan Museum Bulletin*, Dec. 1923, 51.

³ I collated the text in the museum show-case. The drawing was made from the publication. The plate of figures was drawn by Mr. L. Longley.

⁴ See perhaps Frazer, *Golden Bough*, IV (*The Dying God*), 92 ff.

The Medinet Habu scenes (Pl. xxxvii, figs. 11-14 from the left side, figs. 16-21 from the right) are directly under and centred toward the Audience Window, and thus are clearly in connexion with the ceremonial appearance of the king, as is also evidenced by the recurrent phrase "in the presence of Pharaoh." Ten combats are shown.

The reader who examines the cartouches in the two central scenes (Pl. xxxvii, figs. 14 and 16, with texts 9 and 10, Pl. xxxviii) will see that they bear the names of Ramesses II, not Ramesses III. They are Ramesses II blocks reset here in their corresponding places in Medinet Habu. On the pavement of the court just below scene 13 there lies at present a loose stone block bearing scene 15. This also belongs to Ramesses II¹. These Ramesses II scenes are clearly identical with those of Ramesses III and must also have belonged to an audience window.

We thus have five scenes of games in celebration of the appearance of the king. In the 'Amarnah instance they might be a spontaneous outbreak of joy; but in Medinet Habu they are clearly the scheduled programme of a festival. Interesting in the scenes of Ramesses III is the audience of princes, courtiers, and foreigners. Are the latter accredited ambassadors or important captives brought to view the symbolic victory of Egypt over her enemies? Their presence among the courtiers suggests that they are free and respected personages, perhaps the diplomatic envoys.

The discussion of the games will involve: (a) the texts accompanying the scenes; (b) an excursus on a refrain of triumph that recurs in these texts; (c) an examination of the technique of the games, so far as this can be determined.

(a) The Texts of the Games, Pl. xxxviii.

Only the Ramesses II and III texts may be taken to show direct copying; yet the wording of the scenes in Tomb 19 and on the ostrakon is so strikingly similar as to suggest a definite New Kingdom combat talk. Some speeches are mocking or threatening; others are triumphant.

Text 1 (from Pl. xxxvii, fig. 9). "Alas for you, O miserable² soldier, who boasted with his mouth!" Here the opponent is an Egyptian and is called *ḥst* "miserable" rather than *ḥfty* "enemy," as in the parallels.

Text 2 (from Pl. xxxvii, fig. 15). "Alas for you, O negro [enemy,] who boasted with his mouth! Usermarē [-Setepnerē is with] me against you! You..." Perhaps some threat followed.

Text 3 (from Pl. xxxvii, fig. 19). "Alas for you, O Syrian³ enemy, who boasted with his mouth! Pharaoh, L.P.H., my lord, is with me against you!"

Text 4 (from Pl. xxxvii, fig. 13). "Alas for you⁴, O negro enemy! I'll make you take a fall helpless, in the presence of Pharaoh!"

¹ As far as I know, it was identified by Dr. Nelson, Field Director of our expedition. We assume that it and the two blocks in scenes 14 and 16 (within the broken lines) were brought here in the work done on the temple some thirty years ago. In our Pl. cxii and Wreszinski, *Atlas*, II, 158a, it is even possible to see the different quality of the stone, which is very clear on the wall. Dr. Nelson will discuss the relation of the Ramessesum and Medinet Habu in the forthcoming volume.

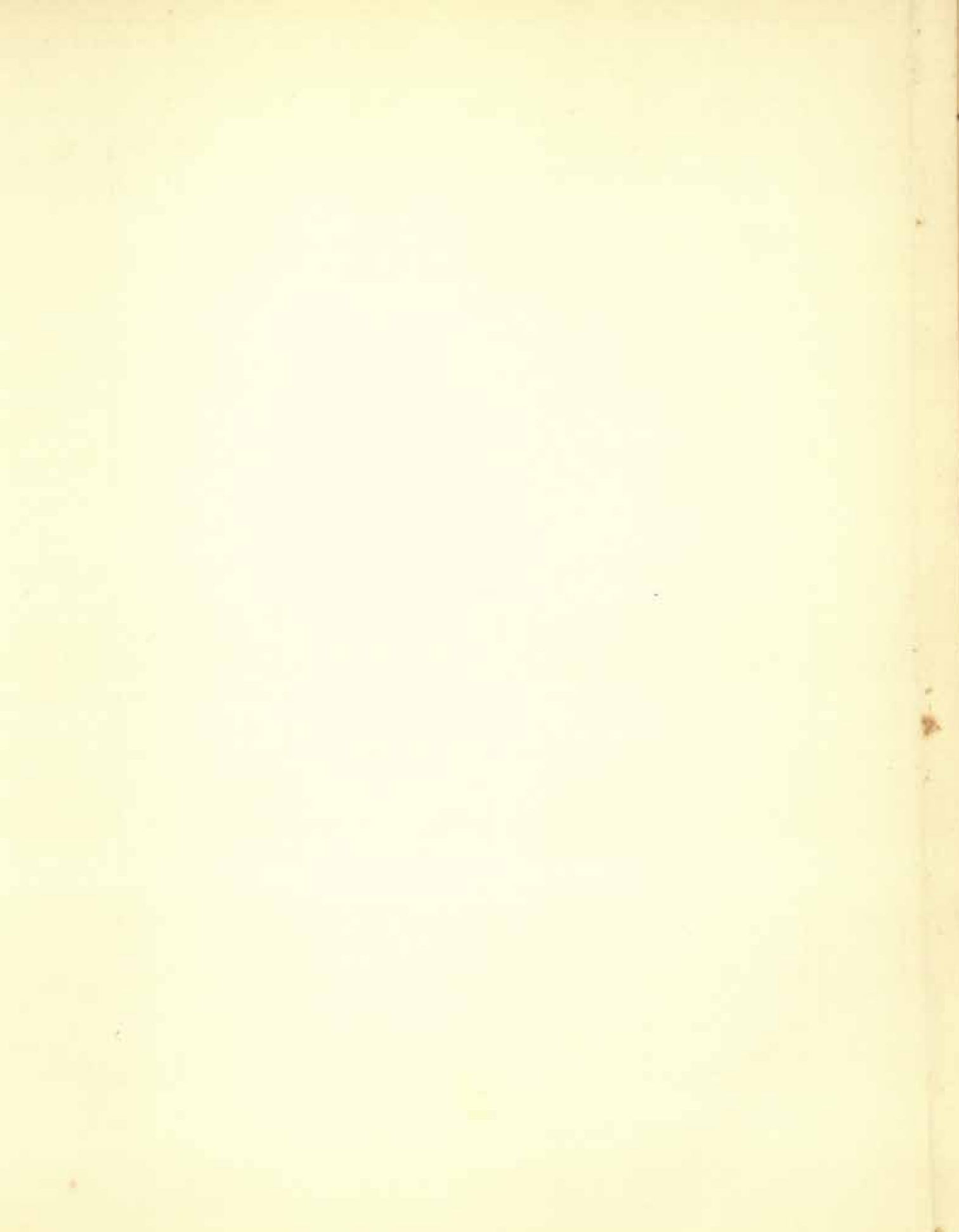
² On the superfluous *sc*, see Sethe, *Verbum*, I, § 270.

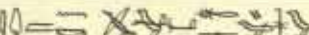
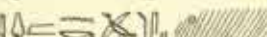
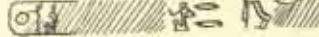
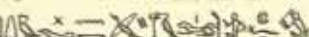
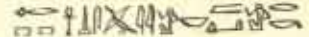
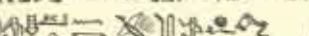

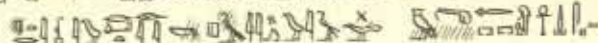
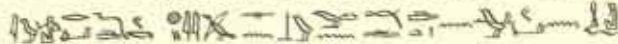
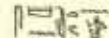
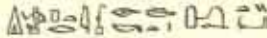



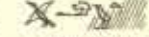
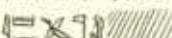




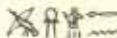
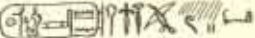


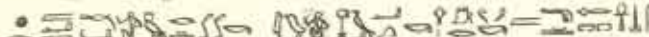
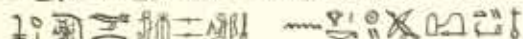
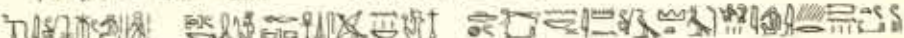
³ The opponent is actually a Libyan, not a Syrian. This shows thoughtless copying from a Ramesses II ancestor text; the Syrians were the traditional menace to Ramesses II that the Libyans were to Ramesses III. The scene was changed accordingly, but the scribe forgot to change the text!

⁴ Read, with the parallels, *imw nk*. This confusion is another instance of unintelligent copying of a hieroglyphic ancestor text (presumably text 2, as scene 15 is strictly analogous).



Scenes from representations of ceremonial games.



1. THEBAN TOMB II  (CONTINUED IN 6)
2. RAMSES II  
3. MEDINET HABU  
4. MEDINET HABU  
5. CAIRO OSTRACON 25.132 
6. THEBAN TOMB II (CONTINUED FROM 1) 
7. MEDINET HABU  
8. THEBAN TOMB II (-TEXT C) 
9. RAMSES II (-TEXT D)   
10. RAMSES II (-TEXT E)    
11. MEDINET HABU (-TEXT J)   
12. MEDINET HABU 
13. MEDINET HABU 
14. MEDINET HABU 
15. MEDINET HABU 
16. MEDINET HABU 

- | Label | Text | Transliteration | Notes |
|-------|---------------------------------|-----------------|-------|
| A. | HATSHEPSUT | ḥtšpswt | |
| B. | TUTENKHAMON
- HANNU | ḥtšpswt | |
| C. | EARLY XIX th DYNASTY | (= TEXT 8) | |
| D. | RAMSES II | (= TEXT 9) | ETC. |
| E. | " " | (= TEXT 10) | ETC. |
| F. | " " | | ETC. |
| G. | RAMSES III | | |
| H. | " " | | ETC. |
| I. | " " | | |
| J. | " " | (= TEXT 11) | ETC. |
| K. | " " | | |
| L. | " " | | |
| M. | " " | | |
| N. | " " | | |
| O. | RAMSES II | | |
| P. | TIANKHI | | |

Text 5 (from Pl. xxxvii, fig. 7). "See, I'll make you take a fall helpless¹, in the presence of Pharaoh, L.P.H.!"

Text 6 (from Pl. xxxvii, fig. 9). "I'll make you say: 'Oh the folly(?)² of taking the hand of a soldier of his majesty!'" The first position in wrestling, as in figs. 7 and 9, was perhaps "taking hold of the hand"—literally "filling the hand."

Text 7 (from Pl. xxxvii, fig. 20). "Stand up to me! I'll make you see the hand of a (real) warrior!" Here "hand" means "skill," as often.

Texts 8—12 (from Pl. xxxvii, figs. 10, 14, 16, 21). These, with reservations in the case of text 11, are a refrain of triumph after victory. The formula is discussed at length in the next section, where it is shown to be spoken by a person or persons rejoicing in the successful completion of an enterprise. I take it, then, that the second part is vocative, addressed to the watching soldiers and their commander. This may be wrong. Tentatively I render: "Amūn is the god who decreed the protection against every land to the ruler, O great troop of Usermarē (etc.), Ruler of the Two Lands, O general!" There are several alternative translations possible, but none seems convincing.

The remaining four texts from Medinet Habu have, as far as I know, no parallels from similar scenes.

Text 13 (from Pl. xxxvii, fig. 12). The referee, distinguished by a trumpet, warns an over-zealous wrestler: "Take care! You're in the presence of Pharaoh, L.P.H., your [lord]!" See the commentary on the technique of the wrestling bouts for the nature of the prohibited hold.

Text 14 (from Pl. xxxvii, fig. 18). "See now—I take hold of your legs, and I'll pitch you on your side³ in the presence of Pharaoh, L.P.H.!"

Text 15 (from Pl. xxxvii, fig. 21). "The Royal Son and Great Commander of the Army, Ramesses, justified⁴, (says): 'Forward, forward, O good warrior!'"

Text 16 (from Pl. xxxvii, fig. 11). "Words spoken by the princes and officials: 'Thou art like Montu, O Pharaoh, L.P.H., our good lord! Amūn overthrows for thee the foreigners who come to set themselves up(?) (against thee)!' " This is not strictly a combat text in the same sense that the others are. It is addressed to the king by the spectators of the bouts who stand at the left. It bears, of course, the implication that foreign countries will be overthrown just as the foreign wrestlers are being overthrown.

From these parallels we may take it that the ancient Egyptians had certain standardized forms of speech which were particularly applicable to ceremonial games before the king. Of course this agrees well with the prescriptive speeches which their arabized descendants employ on definite occasions⁵.

¹ Note the simplex of the rare word *wituit*, on which see Gardiner, *Literary Texts*, I, 30*, n. 3; Amenemopet, 14, 14, and perhaps Pap. Ebers, 101.11. The sense here is perhaps *hors de combat*.

² Rosellini's upright sign might be a *b* or a *ḏt*. The evil-bird and the context supply clues as to the meaning, but the word might be connected with *anb* "overthrow, upset."

³ On *ḏw* as the costal wall, see Gardiner, *Notes on the Story of Sinuhe*, 115, n. 2. Conclusive material will be found in Pap. Ebers.

⁴ The name, following epithet, and uraeus on the brow of the prince were not on the wall in the reign of Ramesses III, but were added later.

⁵ Such hackneyed phrases are, to be sure, very common in the literature handed down to us from ancient Egypt. Cf., for instance, Gardiner-Davies, *Tomb of Huy*, 12.

(b) A Refrain of Triumph.

The jubilant cry which was mentioned under texts 8-12 above occurs several times in the New Kingdom in a similar setting. The fifteen instances which I have noted range from Hatshepsut to Ramesses IV; the scene is always one of some sort of triumph. The instances are as follows (Pl. xxxviii):

Text A. Temple of Dêr el-Bahri, upper court, interior, east wall, south of granite doorway, upper register: over the boats in the procession of Amûn proceeding from Luxor to Karnak (*cf.* text B). Published in Naville, *Deir el Bahari*, v, Pl. cxxv. The block containing this text is not now in place, and I have not discovered its whereabouts.

Text B. Luxor temple, Tutankhamûn-Harmhab colonnade, east side: the procession of Amûn returning from Luxor to Karnak; horizontal line of hieroglyphs over attendants accompanying the procession. Consists of two "choruses of jubilation." Published by Daressy, *Mémoires de la Mission*, viii, 387, which I collated with the wall. Some additions and corrections were taken from *Wörterbuch Zettel* 431-3, for which I make grateful acknowledgement.

Texts C-E (=texts 8-10, from Pl. xxxvii, figs. 10, 14, 16). Accompany victorious wrestlers.

Text F. Karnak, outside west wall between 8th and 9th pylons: scene of triumph on battlefield; text by an Egyptian leading up Hittite captives. Published by Kuentz, *Bataille de Qadech*, 65, §6, which I collated with the wall.

Text G. Medinet Habu, second court, south wall: inscription of Year Five, l. 38. The setting is a scene of triumph after battle and in front of the Audience Window. Published in *Medinet Habu*, i, Pl. xxviii.

Text H. Scene to left of G: over Egyptians leading up Libyan captives in a scene of triumph on the battlefield. Published *op. cit.*, Pl. xxiii, l. 2.

Text I. Medinet Habu, outside north wall: before an Egyptian leading up captives of the Sea Peoples in a scene of triumph on the battlefield. Published *op. cit.*, Pl. xlii, l. 16.

Text J (=text 11, from Pl. xxxvii, fig. 21). Beside a single-stick combatant, as he throws up his arms and faces the king at the Audience Window¹.

Texts K-N. Medinet Habu, first court, east wall: four texts before four Egyptians leading up Libyan captives in a scene of triumph on the battlefield. Published *op. cit.*, Pl. lxxv.

Text O. Turin ostrakon containing a poem of joy on the accession of Ramesses IV. Published in *Rec. trav.*, ii, 116 ff.; translated by Erman, *Die Literatur*, 347-8, by Spiegelberg, *O.L.Z.*, xxx (1927), 73 ff. My text follows that of *Wörterbuch Zettel* 704, for which I make grateful acknowledgement.

Our setting is thus: 8 times in scenes of triumph after battle; 3 times in scenes of triumph in games; 3 times in scenes of rejoicing in a home-coming procession; once in a text of rejoicing at the accession of a king. Only in text J is it uncertain whether the victory has been effected as yet. In three instances (B, G, and H), the hieroglyphs tell us that these are words repeated by participants in the triumph, while in O "all lands" utter the refrain, and the implication is that they, too, enjoy satisfaction.

Grammatically the text offers difficulties, and I am by no means sure that I have wrested the exact sense out of it. It may be noted in C and H that the verb is clearly

¹ This is the victorious attitude, combined with the victorious refrain. But it is not certain that this man is as yet victorious: see commentary on the technique of the single-stick combats below.

wḏ "to command" and that it has the prothetic *'alif* (4 times, as well as twice written *r*). As the cases under consideration are spoken *after* some triumph, I take it that we have here the imperfective active participle, serving in New Egyptian for the perfective. The pronoun *sw* is sometimes *s* but never *st*. The earlier texts write *pṛ nḥt* "the victory"; the Ramesses III and IV texts alter this to *pṛ nḥw*. The original use of "the victory" indicates that the later *pṛ nḥw* is parallel in sense and must be translated as "the protection" rather than as "the protector." At the end, *r t nb* varies with *in t nb*—or it may be omitted. It seems not to be essential to the refrain. It is further to be noted that the *Wb. d. aeg. Spr.* lists no occurrences of *wḏ* with the personal object only¹.

Professor Spiegelberg, who was good enough to examine the texts, suggested that in text B one might see a distinction between *ḫwḏ* "decree, command" and *ḫwḏ* "fresh, fine." This would serve for the last line (in my copy) of text B: "Amūn decreed the victory to Harmhab. O Amūn, thou god, fine it is, the victory of the ruler!" In the same series of scenes (*Mém. de la Miss.*, VIII, 388, collated), *wḏ* is clearly written with the serpent: *ḫwḏ* "How happy is the good ruler!"; but in the first line of text B, in the same exclamation, *wḏ* lacks the serpent and is written like *wḏ*. Professor Spiegelberg admitted that this tempting distinction will serve for text B but not for the later texts with the prothetic. It may have been the original form, misunderstood by later generations, and I may be wrong in attempting to translate all texts alike.

Mr. K. C. Seele suggests that "the victory" is in apposition to the pronoun *sw*: "Amūn is the god who decreed it, (namely) the victory, to the ruler" (or "of the ruler"). If I have a lingering doubt of the construction as being unwieldy, I can offer nothing more plausible. Alternatively one might assume a "nominal sentence," with the participle serving as adjectival predicate (Sethe, *Nominalsatz*, § 80a; Gardiner, *Eg. Gramm.*, § 374), and render: "Amūn, the god; he is the one who decreed the victory to the ruler." In view of the fact that the setting of the text calls for a thankful refrain of triumph, we might suppose that an unusual form was employed for emphasis and translate: "Amūn is the god who decreed the victory to the ruler." As this wording seems to embody the desired sense, I shall use it with the frank acknowledgement that it is a makeshift. Let us pass the texts in review.

Text A. "... beloved of Atum(?)—Re. Amūn is the god who decreed [the victory] to the ruler! Amūn is in the User[het barque]...."

Text B. (The people accompanying the returning procession); "they rejoice before his majesty: 'How happy is the good ruler when he has conveyed Amūn, for He decreed him valour against the south and victory against [the north!] Amūn [is the god who decreed] the victory to the ruler!'"

[Also the people] "who are following his majesty; the chorus of jubilation which they utter: 'Harmhab is conveying Him who begat him! Decreed for him was kingship from the beginning of the lifetime of Rē in heaven. He is rewarded with valour and victory over every foreign country that attacks him. Amūn decreed the victory to Harmhab. (Yes), Amūn is the god who decreed the victory to the ruler!'" (I can make little of the end of the text.) Two points emerge here. The speech is labelled a *ḥn nḥm* "chorus of jubilation²." Further, the statement in direct prose that Amūn

¹ That is, we cannot translate: "Amūn is the god who commissioned him; the victory belongs to the ruler."

² On *ḥn* see Sethe, *Dramatische Texte*, 176-7.

decreed the triumph to Harmhab is followed immediately by the formula, as if in happy expansion of the idea.

Text C. Read again *p; nht* "the victory." Possibly the sign through the \mathfrak{D} , shown by Rosellini as — , should be — , and plural strokes may have been present.

Texts D and E. See translations of texts 8-12.

Text F. After the formula there is a lacuna, then: "Pharaoh, L.P.H. The lands come (?) to thee," etc., showing that it is again a speech.

Text G. (The First Libyan war has reached a successful termination.) "Every survivor was brought captive to Egypt—hands and phalli without number—led captive and pinioned under the Audience Window. The chiefs of foreign countries were assembled, beholding their misery. As for the Court of Thirty and the train of the king, their arms were stretched out, their jubilations (rose) freely to the sky. They (said): '*Amen-Rē is the god who decreed the protection against every land to the ruler!*'" There follows further description of the jubilant scene.

Text H. "Words spoken by the officials and captains: '*Amūn is the god who decreed the protection to the ruler who carries off every land! O Usermarē, Amūn has decreed to thee thy victory(?)¹ like Rē forever and ever!*'"

Texts I-N. Simply the formula, except J, which is treated in translations of texts 8-12.

Text O. "All lands say to him: '*Beautiful is the Horus on the throne of Amūn, the [god] who sent him forth, the protector(?) of the ruler, L.P.H., who carries off every land!*'" Here tradition has carried on the chant, but its meaning has become obscured, and *wḏi* has been substituted for *wḏ*.

Text P. In view of the last instance, it is interesting to note what may be an echo in the time of Piankhi (Piankhi Stela, l. 12 = *Urk.* III, 8). The king gives a final charge to his expeditionary force, directing them to say: "Form the line of battle! Thou knowest that *Amūn is the god who sent us forth!*" Is this in partial memory of what was once a formal chant of victory?

(c) The Technique of the Games.

This article was originally intended to be a study of the texts only, but an empirical examination of some of the wrestling holds suggested that it might be worth securing data on the technique of the games themselves. I appealed to Professor George M. Harper, jun., of the Department of Classics in Yale University, and he studied the wrestling scenes and sent me generous notes and suggestions on their nature. I am indebted for what follows to his sympathetic interest and his knowledge of the palaestrian art. The wording is my own. For greater distinction we have shaded the hair of one of the two contestants in our figures—he will be referred to as "Dark," his unshaded adversary as "Light." See Pl. xxxvii.

Figures 1 and 2. Dark has been thrown and lies upon the ground². Light turns to the judges' stand—or rather the king—and throws up his hands in triumph. See remarks on the objective of the bouts below.

Figure 3. This is a common and effective hold of modern wrestling, apparently carried out as we should wish to do it now. Light has applied a "hip-lock and chancery,"

¹ Reading tentatively *wḏ nk 'Imn nht-k*.

² In fig. 2, Dark is not actually in the air. The arrangement of the groups was very compact (not as in our plate), and he was drawn where he lies to give room for the pair of fig. 3 below him.

and Dark is as good as thrown. It would naturally follow after fig. 7 through the following manoeuvres. Light stepped rapidly forward, placing his left leg and hip against Dark's left thigh and hip. At the same time he slipped his left arm around Dark's neck, so that Dark's head was caught between his elbow and arm-pit. In stepping forward, he had almost turned his back on Dark and, to prevent the latter from seizing an advantage, gave a sudden and strong pull on Dark's head with his left arm, at the same time thrusting his hip up against that of Dark. Dark was thus lifted off his feet, and his body now lies over Light's back and right shoulder, Light grasping Dark's legs with his right arm. This is the situation as shown in fig. 3. Light goes on one knee, planning to give a sudden upward heave and throw his opponent's body free of his own, Dark landing in front on his back. At the stage depicted there is no possible counter for Dark.

Figure 4. Dark probably abandoned the tentative hold of fig. 7 to make a sudden lunge at Light and secure a "body hold" about the waist. Light then drew back sharply and took advantage of Dark's crouching position to secure a "reverse body hold" with both arms, thus preventing Dark from throwing him backward. Light's leg is thrown forward in order to maintain his balance, and Dark may seize the knee and gain a certain advantage. Neither contestant has a marked advantage, but Light can perhaps toss Dark to one side or the other, or, by taking a backward somersault, he may throw Dark up and over and on his back.

Figure 7. This is now known as the "referee's hold" in starting a bout, each man grasping his opponent behind the neck. They feel out each other's strength and manoeuvre for position.

Figure 9. This is a slightly more advanced stage of the same hold. Light's purpose in seizing Dark's wrist was to pull Dark's left arm forward and to the right, work around behind Dark's back and thus gain an advantage. He, perhaps, had the same desire in fig. 7. Dark is trying to prevent this by holding Light's left wrist with his right hand.

Figure 10. Cf. figs. 1 and 2.

Figure 12. Light has taken a "chancery hold" (cf. fig. 3). It is, however, about the neck rather than the head and is really a "strangle hold." Therefore the referee is perhaps warning him against blocking Dark's windpipe. This is an interesting indication that these games had definite rules and restrictions. The hold is a good one, and Light is in a strong position. Dark's efforts to control Light's knees are futile, as he can apply little power in his present position. Harper suggests that Light could have improved his case even more by combining a "bar hold" with the "chancery"—running his right arm under Dark's left shoulder and then his right forearm across Dark's back, in order to prize Dark's arm and shoulder backwards. At the same time his left arm would squeeze and bear down on Dark's head, thus rolling Dark down and on his right side. As the drawing stands, Light is attempting to gain the same end, but without the added leverage of the "bar hold."

Figures 13 and 15. It is clear that Light has a marked advantage and that Dark is on the defensive. Yet it is difficult to name the hold. Light may be attempting a "hip-lock": using his right hip as a fulcrum, he hopes to swing Dark under him in front. He has thrown his right arm around Dark's shoulders to hold the latter at his hip and controls Dark's left arm in a "wrist-lock." Dark tries to prevent Light from pulling him forward and then down by interlocking his left leg in Light's right.

The "hip-lock" is the more plausible explanation, but one may also interpret the scene as an attempted "flying mare": grasping Dark's left hand, Light plans to draw

his opponent's left arm over his (Light's) right shoulder. Using the shoulder as a fulcrum, he would draw Dark sharply forward over it and throw him down on his back in front.

Figures 14 and 16. Cf. figs. 1 and 2.

Figure 17. Harper criticizes this as poor wrestling and remarks that its only justification is the apparent success of Light, who is attempting to trip Dark backwards by throwing his left leg behind Dark's knees. With his right arm he grips Dark's right shoulder, apparently with the intention of pulling it down and forward, thus landing Dark backwards on his right side. Success seems assured, but Light could have improved his hold by locking both arms around Dark's body, to swing his opponent where he wished. As it is, Light's left arm is useless, and his right side is unprotected. Since both Dark's feet are off the ground, he cannot take advantage of his slight opportunities.

Figure 18. Here interpretation is a little difficult. Harper suggests the following course of action. Dark attempted an offensive by grasping with his left arm for a body hold, at the same time stepping through with his right leg in an attempt to trip Light by interlocking with the latter's left leg. With his right hand Dark reaches under Light's left arm to the back of Light's head for leverage, incidentally taking a grip on Light's hair. Dark's intention is to push with his left arm, pull with his right, and trip with his right leg, so that Light will fall on his left side, with Dark landing upon him. However, Light has countered effectively and prevented Dark's step-through by seizing his opponent's knee with his right hand. With his left arm Light apparently hopes to swing his opponent on to the latter's right side, using Light's left thigh as the fulcrum. At the present indecisive stage of the bout, Light has the stronger position of the two.

Figure 19. Light has attempted either a "flying mare" (*cf. fig. 13*) or a "hip-lock" (*cf. figs. 3, 13*). With his left hand he grips Dark's knee, planning to throw Dark forward over his shoulder. Dark has a "chancery hold" on the head of Light, but it seems purely defensive, and Light could easily break it in tossing Dark forward. Light has a very distinct advantage, and, if he were making proper use of his right arm with a firmer grip, he would have his opponent in a hopeless position. For the "flying mare" he should grasp the right arm of Dark; for the "hip-lock" Dark's right arm or neck.

This completes Professor Harper's detailed study of the wrestling scenes. His findings bear out what we knew from the Middle Kingdom wrestling groups: that a full series of developed and effective wrestling holds was known and practised by the ancient Egyptians. Harper writes: "Egyptian wrestling was amazingly like our own. Some of the holds are carried out just as we should wish to do them now. I judge that the object of this wrestling was to force the adversary to touch both hands and one knee, or one hand and both knees, or perhaps all four to the ground, rather than to pin his shoulders to the mat. (*Cf. figs. 10, 14, 16.*) In this respect it resembles the Graeco-Roman wrestling which is still common in various places, notably in the Grasmere sports in the English lake district. My contention is perhaps supported by the absence of any picture of wrestling on the mat. On the other hand, some of the holds used, if carried to their natural conclusion, would normally land the adversary on his back. With this difference in purpose, some of the holds here pictured have a somewhat unusual application from the point of view of the catch-as-catch-can character of intercollegiate wrestling¹."

I would venture to differ slightly from Harper on the purpose of Egyptian wrestling as here depicted. It may be that "three point" or "four point" falls were sought, but

¹ I have made a few minor alterations in his wording.

I do not think that they were necessarily confined to the hands and knees. In figs. 10, 14, 16, on which he bases this conclusion, Dark is certainly prone on three points. But in each case he is facing toward the king, and it is fully possible that the Egyptian artist drew him in the conventional respectful attitude of "kissing the ground." Since he must be drawn on the ground, he should be drawn in the worshipful attitude—in figs. 14 and 16, he is a foreigner, and if these games were symbolical of Egypt's victory he should end by kissing the ground before Pharaoh. On the other hand, in the less conventional art of 'Amarnah (figs. 1, 2), Dark lies on his back or side. As Harper admits, some of the holds, when carried through to their logical conclusion, would land the defeated man on his back (figs. 3, 4, 13, 19) or on his side (figs. 12, 17, 18). In text 14 one wrestler threatens to throw the other on his side. Our texts show only upright wrestling and no wrestling on the mat. Apparently a fall of some recognizable character ended each bout¹.

There is one final consideration with regard to the wrestling matches of the ceremonial games. The opponent may be a negro (figs. 12-15), or a Libyan (figs. 16, 17, 19), or a Syrian (text 3). It is quite possible that the games were symbolical, suggesting the overthrow of Egypt's enemies (*cf.* text 16). Were the bouts "fixed"? Was it preordained that the foreigner, after putting up a stout resistance, should lose to the Egyptian? Or were the bouts fair, unpopularity being the chief bar to the success of the foreigner? In the latter case, the consistent success of the Egyptian here depicted would be merely due to the artistic and literary convention that Egypt is always represented as victorious. I should not venture to give a definite answer to these questions. The Egyptian love of watching good sport, the fact that there were also bouts between two Egyptians (fig. 18 and the earlier ceremonial games, figs. 1-10), and the probable presence of foreign ambassadors or visitors among the spectators, give us some reason to believe that the bouts were fair. But if the games were symbolic, as their representation in the temple suggests, the success of the Egyptian might well have been demanded. Then the foreign contestants would be pledged to "put up a good show" and then succumb.

The single-stick combats (figs. 5, 8, 11, 20, 21) show less of strain and abandon than the wrestling scenes. They look more formal and poised, like the modern Egyptian games with the *nabbūt*. However, the contestants wield sticks with knuckle-guards and wear a vambrace strapped to the free arm and a chin-guard². This indicates that solid blows were expected and given. One can only guess at what the purpose of the bouts might be. Perhaps they went through stylized and abrupt flourishes of their weapons, bringing the sticks as close to the opponent's face as possible (figs. 8, 11, 20)—again the modern games offer this suggestion; the one pertinent text (7) indicates skill rather than force. Or a smart thumping of sticks against leathern chin-guards, following elaborate and formal flourishes, might be rewarded with points. The pairs in figs. 5 and 21 show a similarity of attitude: one man saluting the spectators, the other with arms thrown high in the air, turned toward the king. The latter attitude agrees with that of the triumphant wrestlers, and one man is accompanied by the refrain of triumph (text 11), which should show that he is already victorious. Against this view it must be noted

¹ Perhaps any three points (*e.g.*, shoulder, hip, and elbow) were sufficient for a fall. In the upright wrestling of the Greeks, three falls out of five were necessary for victory. The Beni Hasan wrestling series seems to include also wrestling on the mat. It may be that the New Kingdom ceremonial games "in the presence of Pharaoh" had their own rules. *Cf.* text 13.

² Possibly also a padding on the brow and a strap on the free upper arm (in figs. 20, 21), but neither of these is certain.

that a prince is delivering an incitative speech to one of the two contestants (text 15), which might be taken to show that they are just about to begin their bout. But the Egyptian artist does not normally give us a photographic depiction of one single stage of an action; in one picture he may show several different and successive stages of a story. I believe that the triumphant attitude and speech surely mean a successful outcome of the bout.

The boxing pair—if such they actually are—at 'Amarnah (fig. 6) has no parallel, to our deep regret. To the Occidental it is decidedly interesting to find this sport in the Near East more than a thousand years before Alexander's conquests. It seems not to have survived into the later ceremonial games¹.

We have thus a picture of games as a scheduled part of festive ceremonies held in the presence of the king. The games were skilled and governed by a definite code; the participants were perhaps trained gladiators.

¹ Mr. K. C. Seele calls my attention to the example illustrated in *Zeitschr. f. äg. Spr.*, 1811, 87. Of course, this may show Greek or Roman influence.

A NOTE ON THE ORIGIN OF OSIRIS

By T. J. COLIN BALY

The legend of Osiris as we find it at the date of the Pyramid Texts is not that of Plutarch, nor, indeed, is it a single whole. Osiris was a king, the father of Horus, who inherited his kingdom, and he was killed either by drowning (*Denkm. Memph. Theol.*) or by being knocked down by his brother Set (*Pyr.*). In the first case Set is apparently not the cause of the disaster, which has the appearance of an accident in which Isis and Nephthys made an unsuccessful attempt at rescue. In this version Osiris is buried at *H-t-tt* in Lower Egypt. In the second case three localities are mentioned as the scene of the murder, *Ndt-t* (*Pyr.* 721, 819, 1256, 2188), which includes a bank (*wdb*) of Nedit (1008), *Ghs-tt* (972, 1033, 1799) and *tdb* (2115). In all probability *tdb* and the *wdb* *Ndt-t* are the same place, so that there are merely two variants. The "Bank of Nedit" suggests the drowning story, but there is no actual mention of it. *Ghs-tt* is mentioned in connection with the death of Osiris in line 137 of the apparently early Ramesseum Coronation Papyrus¹.

The *dd*-pillar, which has so often been claimed as showing that Osiris was originally a tree deity², has long since been shown to have originally been a separate god, probably totemic, at Memphis, and to have been later absorbed by Osiris (Sethe, *Unters.*, III, 134). The Ramesseum Papyrus referred to above shows Osiris as an *im*-tree placed upon a *dd*, which is spoken of as Set. The identifications may be worthless—they belong to that period of identification when the doors of a shrine holding a god were called the jaws of Set, while the shrine itself was Set bearing Osiris, and so forth; but they at least show that the *dd*-pillar cannot have been identified with Osiris until after the latter had become the victim of Set, that is, until a comparatively late period in his development. The *dd*-pillar itself opens up very interesting lines of thought, not the least of which touches the story of Bata, but it is of no particular importance in the study of Osirian origins.

Another usually accepted statement about Osiris is that he was originally a king. There is no definite evidence for this, since the mentions of that aspect appear to be later than his identification with *rnd-tt*. Sethe points out in his *Urgeschichte* (81) that Osiris apparently took his insignia of royalty, with an exception to be commented on below³, from Andjety, and Kees (*Totenglauben*, 197) remarks "Vielleicht verdankt also Osiris ihm [*rnd-tt*] die starke Ausprägung seiner Charakterzüge als König," but no one seems to have pointed out the possibility of his having taken his kingship entirely from this source. Yet it is hardly likely that a king would shed his own attributes entirely and absorb those of another.

¹ Sethe, *Dram. Texte*, II, 242, where he points out that it may be identical with *sit-t*, whence Osiris comes in *Pyr.* 1761.

² Frazer, *Adonis, Attis, and Osiris*, and, more convincingly, Sidney Smith, *History of Assyria* (1928), 123 ff.

³ The Upper Egyptian crown is ignored here as being palpably a later intrusion.

Osiris' name is of some interest in the study of origins. The reading *irw s-t*, "He who makes (his) throne," ignores the fact that in early times it is usually written *ꜥ*, not *ꜥ*, and Sethe's suggestion¹ of *s-t ir-t*, "The place of the Eye," is preferable; his later development of "Augenfreude," however, is not so attractive, despite the parallel of *s-t ib*, and the sense may well be quite literal. Now the most important "Eye" in early Egyptian religion is that of Horus. If Osiris is "The Place of (Horus') Eye" there must have been some connexion between them prior to the date at present supposed. An early connexion would, however, explain why an Osiris, murdered by Set, is already in alliance with Horus while the latter is still at peace with Set. It is noted above that in the Shabako Stone Osiris is apparently drowned accidentally and Horus and Set are still at peace. What more natural than that when Horus and Set became enemies the latter should become the cause of Osiris' death?

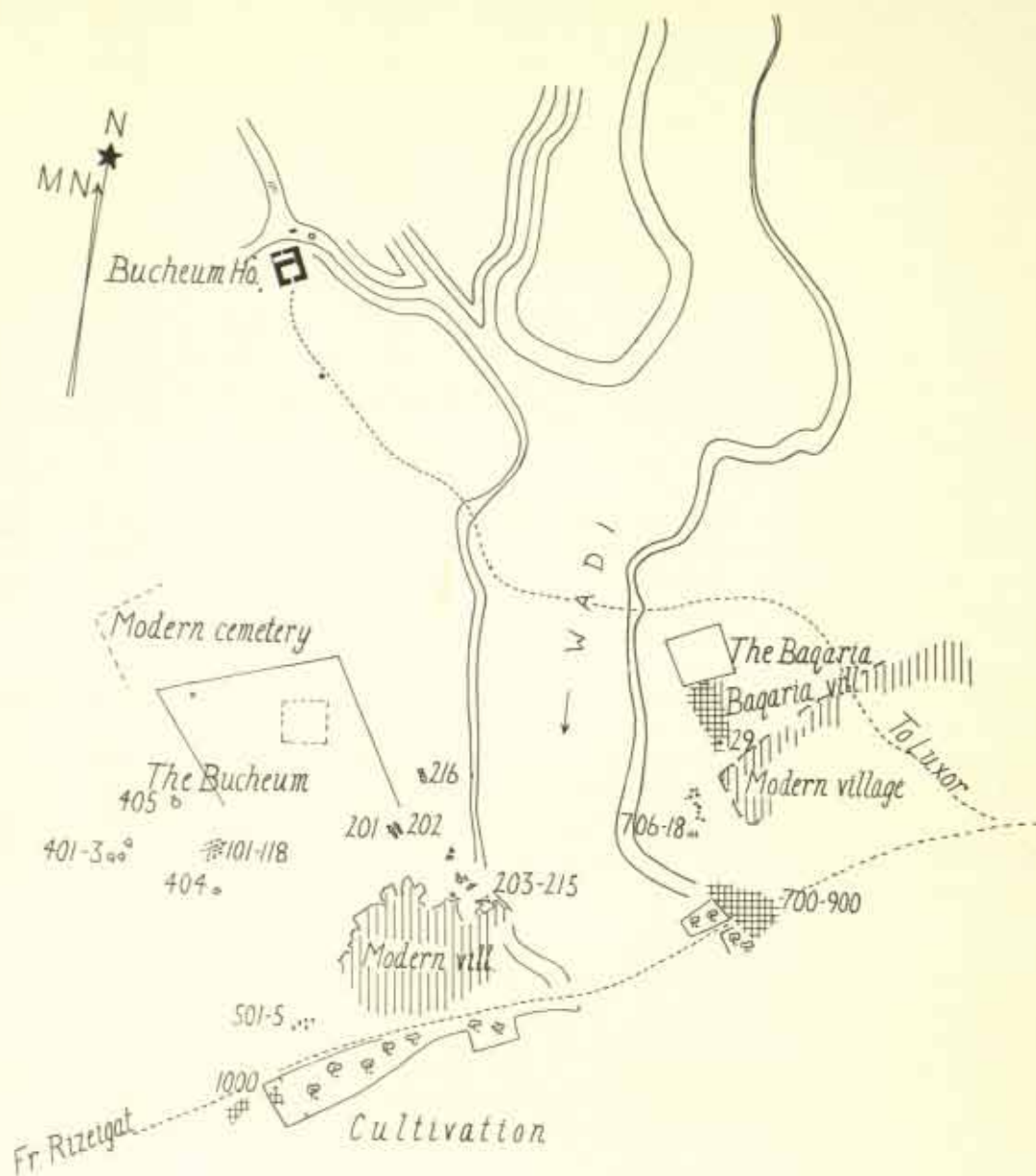
In further explaining the meaning of Osiris' name on this assumption the nature of the Horus-eye comes into question, and a study of this problem in the early texts has led me to the conclusion that it may have been originally connected with that Ladanum to which Newberry refers in *Journal*, xv, 86 ff. Ladanum was used in making incense and incense is closely connected with the Eye. Horus fumigates himself over the Eye, and in *Pyr.* 2075 we find: "Ho N., I have come. I have brought the Horus-eye which is in its *t*. Its perfume is on thee, O N. Its perfume is on thee. The perfume of the Horus-eye is on thee, O N., and thou art a *ba* thereby, thou rulest thereby, and thou takest thy *wrr-t*-crown thereby among the gods." The first part of this passage assumes that the Eye is sweet smelling and the second part may well refer to incense in view of its divinizing qualities. Further, in *Pyr.* 133 and 695 we read: "The Horus-eye weeps upon the *ḏnw*-bush." There is no further information in this passage but it is at least possible that the *ḏnw*-bush is the Gum-*cistus* and that the weeping of the Eye is the exudation of the Ladanum. If this is so it follows that Osiris must originally have been this Gum-*cistus*, and it is of interest in this connexion that incense was considered as an exudation of Osiris².

Osiris brought in as part of his insignia goat's-horns (Sethe, *Urgesch.*, 81) and is early connected with a goat or ram at Mendes. Note also that at a very early period a beard, presumably the king's, was deified (Borchardt, *Sahure*, I, 97), and that it was so important that despite the habit of clean shaving both the kings and the gods wore long thin false beards with curled tips (Erman-Ranke, *Aegypten*, 251-2) not unlike a matted goat's beard. Now Newberry (*ibid.*) has pointed out that the goats' beards got matted with Ladanum and that this was one way of collecting it. It is not difficult to imagine the importance, and even the deification, of an object so impregnated with a sacred substance, and hence the deification of the goat itself.

If Osiris were originally the Ladanum-bearing *Cistus* he would naturally be of the ordinary vegetation type, and the two stories of his death would be quite normal. A vegetation god is frequently spoken of as drowned, and what is more natural for a tree-god than that his death should be spoken of as "felling"? His identification with Andjety, and hence his kingship, is easy to explain when one considers the latter's connection with Ladanum.

¹ *Rechts und Links*, 233, and *Urgesch.*, 79.

² Blackman, *A.Z.*, I, 69 ff.



BUCHEUM HOUSE & ENVIRONS

Scale:- 0 100 200 Metres

Armant. General Plan.

Scale 1: 7500.

EXCAVATIONS AT ARMANT, 1929-31

BY O. H. MYERS AND H. W. FAIRMAN

With Plates xxxix-lxvii.

As the Bucheum and Baqaria are to be published very fully in volume form during the course of next year it has been thought better to publish here some of the extraneous material excavated than to give a preliminary report upon the main operations. Of the various minor excavations undertaken during the last two seasons, the cemeteries seemed to have least associations with the major work and have therefore been selected for publication in the *Journal*.

The graves recorded were dug for various reasons. Cemeteries 100, 400 and 500 were encountered in the course of other operations and only the graves touched were cleared. In each case there are probably many more graves in the cemetery. Cemetery 600 was a deliberate *sondage* to discover what sort of prehistoric material our colleagues the *sabbâkhin* were obtaining in their excavations to the south. We cleared cemeteries 200, 700 and 900 partly in the hope that we might find something bearing upon the Bucheum and partly with a view to training some workers in this type of digging.

In the season of 1929-30 Mr. F. W. Green was Director, and Mr. H. W. Fairman, Miss N. E. Scott and M. B. Van de Walle all assisted in the work. During last season Messrs. Myers (Director), Fairman, T. J. C. Baly, A. G. Buchanan, R. N. Lester and W. B. K. Shaw comprised the staff. Fairman took charge of most of the work on cemeteries 700-900 whilst Myers was ill; Miss Scott dug 600.

I am indebted to Mr. T. Midgley for his description of the linen and to Mr. Guy Brunton and Professor Sir Flinders Petrie for much valuable assistance.

We are indebted to Dr. Robert Mond for financing the entire work at Armant and for building, for the use of the staff, the comfortable headquarters known as Bucheum House.

Cemetery 100 (Pls. xxxix and xl).

The graves were all very close together and were mere cuts in the ground to take the bodies, mostly slightly narrowed at the head. The robbers had smashed up everything. Apparently all the bodies had been wrapped in a coarse linen shroud bound with tape, a sample of which from 105 is drawn on Pl. liv; that in 115 had been bound with string; that in 112 B had green and red embroidery down the front. An aged woman buried in 112 A had a dress covered with green, red and yellow embroidery. Unfortunately it was too broken and decayed to enable us to preserve any of it.

Mr. Midgley, of the Chadwick Museum, Bolton, has very kindly sent the following report on specimens from this cemetery:

103 A. Coarse brown linen, plain weave. Bundles of red and green wool yarns are drawn between the weft threads which pass over these bundles irregularly.

103 B. As 110 A.

404 A. Woollen cloth embroidered with an interlacing lozenge design in purple wool. A line of fancy stitching along one edge.

404 B. Two fragments of linen, plain weave, of hard twisted yarns. Woven stripes in red and green wool. Note the peculiar bunching of the warp yarns.

404 C. Fragments of fine linen, plain weave. Yarns particularly well spun. Remains of coloured stucco decoration adhering.

114. Woollen cloth, plain weave. Edge stiffened and stitched over. Two narrow stripes tapestry-woven in red wool.

112 A. Linen, plain open weave. Edge stitched over.

112 B. Coarse hard linen, plain selvedge on one side. Warp ends form a fringe. In places two or three warp threads in one shed. Warp yarns very uneven in diameter.

112 C. As B. Warp ends peculiarly flattened, possibly from the pressure of the cloth beam.

112 D. Coarse linen yarns, variable in diameter and amount of twist. In one place there are two sets of three wefts in one shed.

110 A. Woollen woven cloth, check design in green wool.

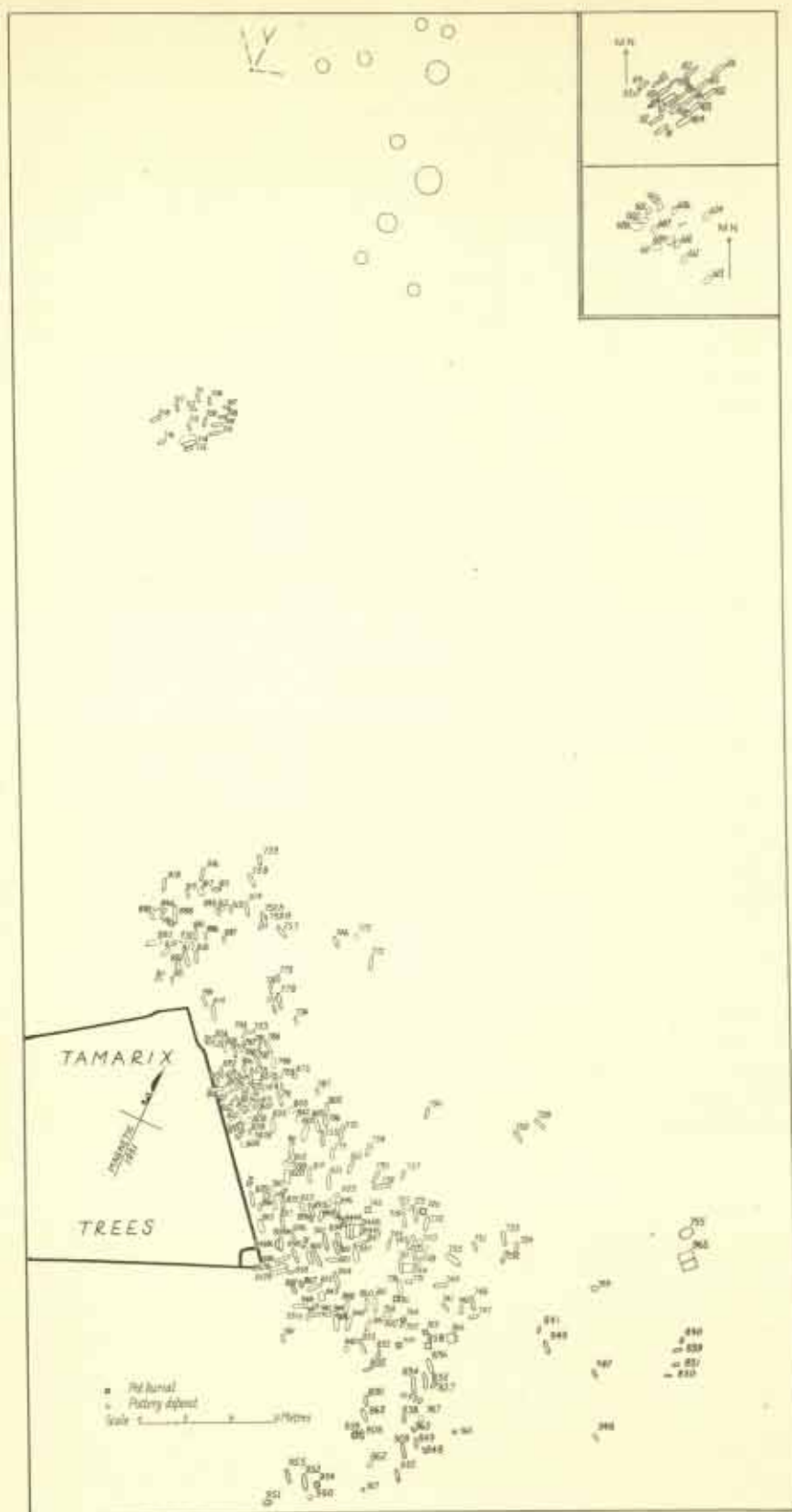
110 B. Linen, canvas weave, with indistinct bands of blue, green and red wool.

110 C. Blue wool yarns, very evenly spun and hard twisted as though intended for warp.

Cemetery 200 (Pls. xxxix and xli).

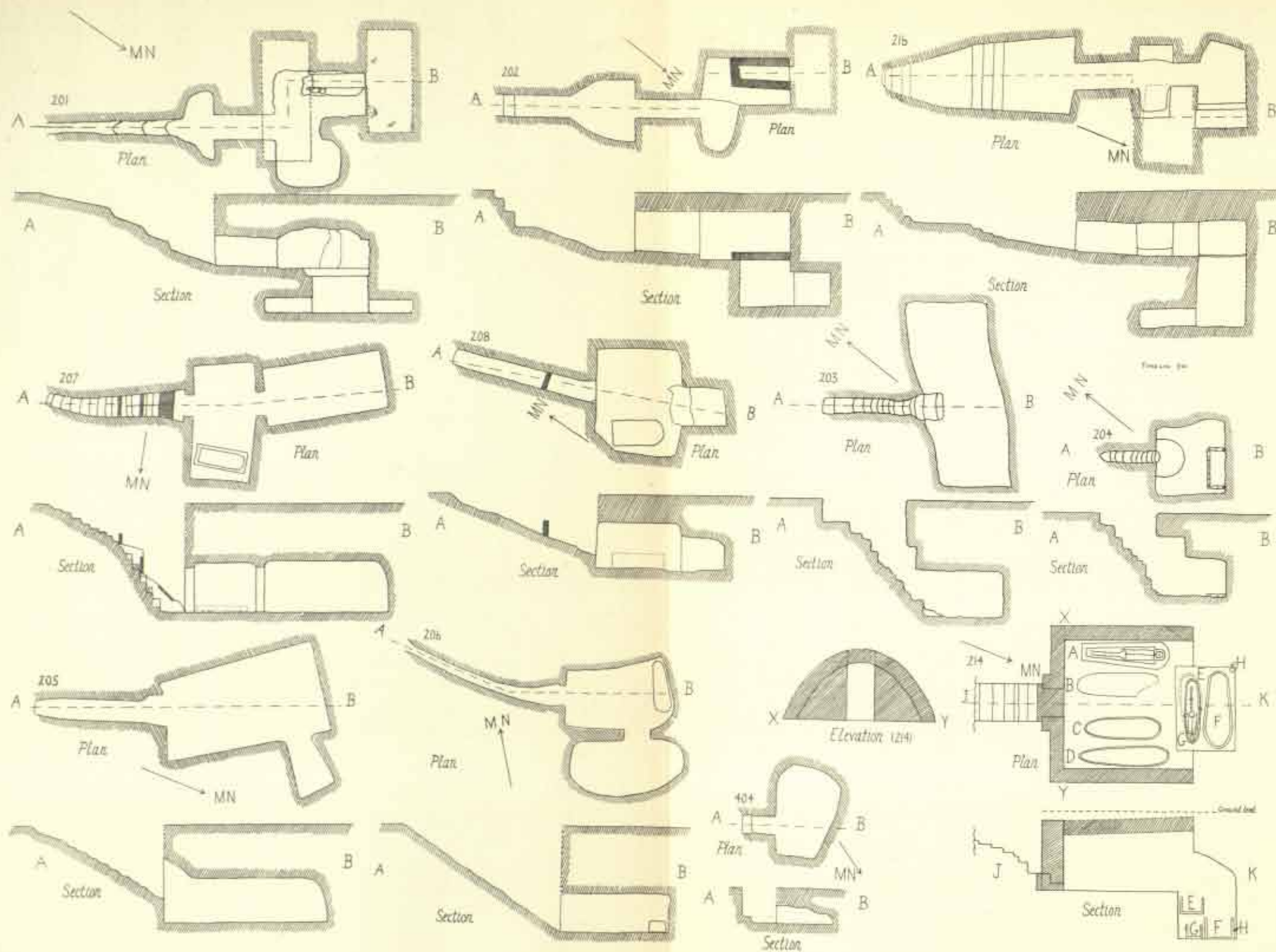
This cemetery consists for the most part of large tombs re-used at different periods and finally robbed again and again. In several tombs the robbers had been so thorough as to use sieves. When we saw that the last use of the tombs had been in Roman times we decided that, considering their proximity to the Bucheum, it might be worth while to expend more trouble over them than their condition would otherwise have warranted. In those cases where the entire contents had been turned over and over we sieved the whole of the filling. The rewards were hardly adequate, the only objects relating to the Bucheum being the limestone bull's-head from 203 (Pl. lxi, fig. 2) and the two Buchis amulets from 205 (Pl. lx, fig. 2).

I have been unable to find any parallels for tombs 201 and 202, though Mr. Winlock tells me that he has found them at Kurnah. Fortunately we found pots in position at the bottom of the chambers which, together with the beads, enabled us to date their construction to the Eleventh-Twelfth Dynasties. Tomb 216, of a very similar plan, we could also attribute to this period. The flint picks with which these tombs were excavated are shown in Pl. lix, fig. 3. They were left by the workmen in the bottom chambers. A small alabaster kohl pot and a few spheroid green faience beads which were dropped by the robbers in the shaft of 201 remained untouched during the later use and robbing. Tombs 205, 206, 207 and possibly 208 are so similar to the Second-Dynasty tombs at Sedment (*Sedment II*, lxxxi) that, although no Old Kingdom objects were found in them, we can safely attribute their original construction to that period. We can do this the more safely in that they had obviously been used and re-used, as witness the Sekhmet and Taurt figures from 206. These were found underneath a pottery coffin. Presumably they were left by the pre-Roman robbers, and the Romans, placing the coffin on top of them, saved them from modern robbers. I should be inclined to think that 203, 204 and 209 were re-used early tombs, but there is no proof. 214 is undoubtedly contemporary with its burials, that is to say, 4th century A.D.



Armant. Cemeteries 100 and 600 (inset)
and Cemetery 700-900.

Scale 1 : 750.



Armant. Plans and Sections of Tombs. Cemeteries 200 and 400.
Scale 1 : 200

Notes.

(a) In the original there is a small horizontal stroke at the point where one would expect the head of *m* in *mnw*. It is definitely not a part of *m*, nor is there room for the insertion of a sign between *n* and *mnw*. It is possible that we are to read here *hr m; n-(k) mnw*, "shows thee the roads" (cf. Brugsch, *Wörterbuch*, II, 572). The translation given above assumes the omission of *n* (cf. Sethe, *A.Z.*, LIX, 87 and Mariette, *Denderah*, I, 9, 13 for a similar phrase).

(b) Probably read *mtn* with *nw* in the place of the second *t*.

B. Inscription over Nut. An uncertain amount has been lost at the beginning and the end.

. . . (1) the place in which thou art. Mayest thou go forth and return, without (2) thy legs being repelled. Mayest thou enter in to^a (3) the god, and not be turned back, living, (4) abiding, renewed and young for ever. (5) Nut the great, (6) who bore the gods, protects thee^b (7) in the Necropolis that thou mayest (8) live, be renewed and be young (9) and not perish for ever. (10) O Osiris, justified, (11) thy mother Nut spreadeth herself^c (12) over thee in her name of Št(š)- (13) pt^d. Thy mother Nut shall not be distant (14) from thee^e (15) in her name of "the Distant One"; she makes (16) thee to be a god without (17) any foes in her name of (18) God^f . . .

Notes.

(a) Read *rk-k hr ntr*.

(b) Read *tr-s š-k*. The form of *š* was most uncertain in the original, but may well have been some form of *ape*.

(c) Room for \equiv at the top of the line. To the right is a trace of a horizontal stroke which suits *n*.

(d) There is possibly just room for the full writing $\square \equiv$ at the top of the line; \equiv is certain. Št(š)-pt: in the texts of the *Pr dwst* this is the place of origin of the five grains of Lower Egyptian Natron (*Pyr.* 27e). It has been identified with the Wādī en-Natrūn. It is also one of the epithets of Nut (*Wb. d. aeg. Spr.*, IV, 550-1). For the whole phrase cf. *Pyr.* 638; B.M. 6647 (coffin of Mycerinus); Naville, *Todtenbuch*, Pl. ccii, 32; and frequently on the coffins of the priests of Month in Cairo (Gauthier, *Cercueils anthropoïdes des prêtres de Montou*, Nos. 41044, p. 35; 41046, p. 86; 41047, p. 116, etc.)

(e) Nothing lost.

(f) Cf. *Pyr.* 638. Most of the texts of the priests of Month read *tr-s* (or *dī-s*) *wnn-k m ntr*, *nn hftw-k m bw nb šm-k tm*. The traces after *ntr* in line 18 seem to indicate that what followed was probably *hnm-s tw m-š ht nb (dw)* (Gauthier, *op. cit.*, No. 41048, p. 144, which is parallel to our text). Another possibility, though not quite so likely, is that we are to read *hnm-s tw m rn-k n hnmw wrt* (Gauthier, *op. cit.*, Nos. 41044, p. 34; 41050, p. 186; 41051, p. 212).

Since the completion of our work a search has been made for parallels to the cartonnage in the hope that information might be gained which would help to date the cemetery, and also because we considered that the graves might well be those of priests of Buchis, or others connected with the Bucheum. A personal search in the galleries of the Cairo Museum has produced nothing. Mr. Baly has searched the relevant volumes of the Cairo Catalogue, and also the publications of other museums, but has not found any parallels except to the Nut inscriptions. I have been able to find only one published cartonnage which bears any resemblance to 403 B (cf. Elliott Smith and

Dawson, *Egyptian Mummies*, frontispiece, and p. 144; from Nubia). Finally, Mr. F. W. Green drew my attention to some cartonnages in the British Museum which were obviously similar to the Armant one. By the courtesy of Mr. Sidney Smith they have been examined, and photographs of three of them—Nos. 6965, 6968, 6969—are published on Pl. lvii to show the main varieties. There are eight of this type of cartonnage in the British Museum—Nos. 6963 to 6969 inclusive, and 34262¹. Of these, 6969 bears the closest resemblance to 403 B. The mention of Buchis also renders it worthy of further study.

Cartonnage B.M. 6969 (Pls. lv, lvii).

A. Inscription over Nut.

(1) *Given life*, (2) *Nut*, (3) *the Great, who bore the god(s)*, (4) *Khuyet*^a, (5) *the ḥbst-ntr*^b, (6) *in dwrt and ššrt*.

Notes.

(a) Khuyet, a goddess of Athribis (cf. *Journal*, vii, 11; Piankhi 108).

(b) *Ḥbst-ntr*: "the divine wife." Occurs again in B.M. 6966. An epithet of *Hwyet* of Athribis (cf. *Wb. d. aeg. Spr.*, iii, 67; Möller, *Ä.Z.*, lv, 95-6).

B. Inscription over the winged beetle.

(1) *Homage to thee*, (2) *Horakhte, Great God*, (3) *Lord of Heaven, Kheperi*, (4) *self-made. How pleasant is* (5) *thy (rising)*^a *in the horizon*, (6) *when thou lightenest* (7) *the Two Lands with thy rays*. (8) *All the gods rejoice* (9) *when they see him* (10) *(as king of heaven)*^b. (11) *Wnwt is on thy head*^c.

Notes.

(a) Read *wbn-k* as in 6966, 6967, 6968.

(b) Read *m nšwt n pt* (cf. B.M. 6966, 6967, 6968, all of which omit *sw*).

(c) *Tp* is certain, though badly formed. B.M. 6966 reads *nbt wnw mn-ti m tp-f*; B.M. 6967 substitutes *tp-k* for *tp-f*; B.M. 6968 is incomplete. There is hardly room for the insertion of *nbt* in line 10. Moreover, the goddess is undoubtedly meant here, though in each of the other texts *wnw* is determined by *Ḥ*. For the phrase cf. *Rec. de trav.*, xxxiv, 181, 182.

C. Inscription down the legs.

Utterance: O Osiris, chief of the mysteries of the Osiris Buchis^a, *Wḥ-lb-rt, justified, there comes to thee Anubis, 'Imi-wt, Lord of Ta-djeser, that he may give thee a goodly burial on the west of Thebes.*

Notes.

(a) *ḥrt-ššt n šsr bh*: in the late period *ḥrt-ššt* has special reference to embalming (cf. Spiegelberg, *Ä.Z.*, lvi, 3-4: "Nach unserem Texte ist der *ḥrt-ššt* offenbar der Leiter der Einbalsamierung"). A wooden tablet (unpublished) of another *ḥrt-ššt n šsr bh* is to be found in Strassburg (Spiegelberg, *op. cit.*, 4). Unfortunately, this reference was found too late to permit any further enquiries being made as to the name of the man, or the details of the inscription.

The Date of the Cartonnages.

The photographs and the inscriptions make it reasonably certain that the Armant and British Museum cartonnages come from the same cemetery. It is obviously difficult

¹ All these were acquired in 1843 as part of the Belmore Collection; provenance unknown.

to talk about the development of types where so few objects of such poor workmanship are concerned, but it is probable that 403 B is the earliest of the group and that it is followed closely by B.M. 6969. Wah-ib-Rêr himself is unknown, and the only other means of fixing the date is the spelling of the name Buchis.

In all the earlier stelae which have been found at Armant Buchis is invariably spelt . The earliest occurrence of the spelling *bh* is on the stela of a bull which died in Year 25 of Ptolemy VII, Euergetes II (145 B.C.). In the stela of the previous bull, which died in 162 B.C., Buchis is spelt *b* *hr* *hst*. In all the following stelae *bh* only is used. A possible exception to this rule was found during the 1930-1 excavations at Armant. On a *nemes*-vase of Nekht-hor-heb Buchis was spelt —, though the stela of the bull of the same reign writes *b* *hr* *hst*. Until we know more about the ideas behind Buchis and his name and titles it is unsafe to attach too much importance to this solitary exception. It is therefore very probable that the earliest date to which these cartonnages can be assigned is about 145 B.C., and it may well be later. In this connexion it is of interest to note that one of the criteria for the dating of Buchis stelae, quite apart from the inscriptions, is the fact that on all stelae from the earliest times up to the reign of Tiberius the reliefs of Buchis show a bull standing up and alive. The later Roman stelae show the bull mummified, as in B.M. 6969. This criterion, however, only applies to the reliefs. The only other instance of Buchis written with the determinative of a mummified bull occurs on the offering table Ar. 28-29.217 which was found in the same place as the stela of Antoninus Pius—though neither was apparently in its original position. It is to be hoped that by the time the full report on the Bucheum appears further evidence will be forthcoming.

Cemetery 500 (Pl. xxxix).

All the tombs of the 500 group, with the exception of a few poor, shallow graves, were brick vaults plastered white and having a trapezoid, latitudinal, vertical section. (See Pl. lviii, fig. 1.) 501 produced a group of needles (Pl. lx, fig. 1) and a group of pottery. This cemetery is probably 4th century. 528 is later.

Cemetery 600 (Pl. xl).

The graves were very close together and, as they lay in a disturbed, loose, sandy earth, it was almost impossible to establish their edges. The pottery could only be allotted to its correct grave by position and level. With the exception of 603 B, an intrusive pottery group of S.D. 37-38, all the graves lie between S.D. 55-77. The beads from 609 were not all of types given in the bead corpus in *Badarian Civilization*, so it was thought better to draw the string in the order found (Pl. xlii). The cemetery has been robbed anciently only and the finds were few because so few graves were dug. It appears to be a promising cemetery.

Cemetery 700-900 (Pls. xxxix and xl).

It was in the course of searching for a solitary cow burial which we thought might exist in the neighbourhood that we found this cemetery. We first uncovered the remains of Badarian grain pits (Pl. xl, top) and hoped that we might find the attached settlement or cemetery. Unfortunately this must have been completely eroded, leaving only

the bottoms of the deeper storage pits. In the pits were a number of smooth brown, black-topped sherds, including several distinct keels, but very little rippled ware. The certainty of erosion was clinched by the discovery of the roots of a large tree, the stump of which had evidently been several feet above the present level of the ground (Pl. xl, top left).

Working south towards the river we opened graves 706-718, which were all badly robbed, Coptic in date, and devoid of objects and interest. We therefore left this cemetery, which was isolated on a spur, and continued the main clearance south. After a gap of nearly fifty metres we came into the main body of the cemetery. This consisted of graves of the 3rd or 4th centuries A.D. with a few pot burials and other tombs of the Second to Fourth Dynasties. These Old Kingdom tombs were singularly poor. Pot burial 761 contained half an alabaster, which, as the burial was undisturbed, must have been the best equipment which the relatives could provide. Shaft tomb 766 contained three very badly worked alabasters illustrated in Pl. lix, fig. 2. The only other object of interest was the rectangular terra-cotta coffin, with lid, 771, of which two photographs are given (Pl. lviii, figs. 2 and 3). The red border round the top is identical with that round the top of the tomb of Queen Meresankh at Gizah.

The Roman graves were so poor that they call for no comment other than that given in the register and analysis. The group of pottery 909 (Pl. lix, fig. 1) is worthy of notice, as is also the horseman from 799 (Pls. liv and lix, fig. 4).

The Pottery.

Although all the pottery connected with the cemeteries is published here we propose not to deal with it fully but to leave that till the publication of the corpus mentioned below. Much of the Roman ware is but roughly shaped by the potter, and this asymmetry has, as far as possible or reasonable, been retained in the drawings. At the top left of each pot is its type number, at the bottom left its provenance number and at the bottom right its description. In the description three varieties of ware are given: S. Soft, M. Medium, H. Hard. For colour the first letter and the last letter only of the colours have been given: We. White, Bk. Black, Oe. Orange, etc. Dec. stands for Decoration, Alt. for Alternately. Very fine or very coarse ware is further indicated by the words "coarse" and "fine." Thus "Fine H. Rd. Bk. & We. Dec. Alt." stands for a fine, hard, red ware, in which the designs are alternately black and white. The first pottery plate (Pl. xliii) gives the Predynastic, Old Kingdom and Middle Kingdom forms, with the exception of the burial pots, which have had to be carried on to Pl. xlv. Pls. xlv to lii comprise all the Roman ware arranged according to tomb-groups. Owing to exigencies of space it was found impossible to keep strictly to numerical order, Group 909 being carried from Pl. i to Pl. li, and Groups 941 and 942 from Pl. li to Pl. lii. Pls. lii, liii and liv give the pottery found loose in the Roman cemeteries. There are one or two pots, notably 99d, from tomb 401, which may be Ptolemaic.

A curious feature for which we have not been able to account is the large punctures in the bases of certain pots, 83k, tomb 753, and 70x.1, tomb 909. In the case of the former, which is a *kadûs*, we thought at first that these holes might be due to wear, but with the aid of the proprietor of a *sakia* we established the fact that the pot had never been used. The holes ranged from four to seven in number and from 1 to 2 cm. in diameter. Other specimens not published here were found.

Group 528 is much later than the rest of the pottery and is undoubtedly Coptic.

Objects of Metal.

Most of the metal was in very poor condition and could not be preserved. In many cases the earrings were little more than powder when found. An interesting type of bangle, of which we found fragments in 823 (Pl. lxii), was made of two strands of wire, one iron and the other copper or bronze, twisted round each other. The group of bronzes labelled 200 on Pl. lxii probably came from an occupation level of which faint traces remained. The outer pair of earrings in this group is modern and was bought for comparison from a girl living in the same village to-day. Of the bronze armour-scales in 208 (Pl. lxiii) the upper two are shown cleaned and the lower two with the linen adhering to them. Unfortunately it was impossible to retain the rivets in cleaning. The bronze ring in 204 showing Serapis radiant, between two uraei, is probably early 4th century (Pl. lxiv).

Other Objects.

The limestone bull's-head from 203 (Pl. lxi) is extremely similar to that on an Isis-Apis statue in the Vatican (Milne, *History of Egypt under Roman Rule*, Fig. 104). The Sekhmet figure from 206 bears on the back an inscription (Fig. 1), which is unfortunately broken off at the name: "Utterance by Sekhmet, great of love, heart of Ptah, goodly ssm, who gives life, and all health and joy to the ka (of)..."

The three inscribed limestone seals from 208 (Pl. lxiii) are accompanied by a small lead square weighing 110 grains, which may possibly be a half-beqa.

The stone hawk-amulet in the same group would appear to be Ptolemaic. The beads, with the exception of one or two much decayed strings from Cemetery 700-900, were such a mixed lot that it was not considered worth while to draw and register them. Pls. lxiii-lxv give an idea of the mixed nature of the strings. The Predynastic group from 609 is shown on Pls. xlii and lxv.

The Tomb Register (Pls. lxvi-lxvii).

As will be at once apparent the register is largely modelled on those used by Mr. Brunton in *Qau and Badari II*, slight modifications having been introduced to suit the nature of the material. The plate of body positions in *Qau and Badari I* has also been followed, but all the positions which occurred on our work have been reproduced (Pl. xlii). All tombs with objects have been inserted in the register. The information as to sex and body positions in the omitted graves is incorporated in the analysis (Pl. liv). It should be noted that the figures in the analysis include registered as well as unregistered graves. Examination showed that further analysis of the relationship of sex to body position would produce no statistics of value.

In the Predynastic and Old Kingdom section of the pottery column the corpus numbers on the left refer to Petrie's *Prehistoric Corpus* or to the supplement of this in *Badarian Civilization*. The serial numbers on the right of the column refer to drawings reproduced on Pls. xliii-xlv. The stone vases have similar serial numbers and are reproduced on Pl. xlii. In the Roman section the corpus numbers refer to our own corpus of Roman pottery, which is as yet unpublished, but all the pots will be found drawn in groups under their tomb numbers on Pls. xlv-liv. At the time of writing negotiations are in progress for the publication of an international corpus of Graeco-Roman pottery found



Fig. 1

in Egypt and the Sudan, but it is uncertain whether sufficient support will be received to achieve this ideal. Should the scheme fail, our own corpus will be published next summer in the memoir on the Bucheum and the Baqaria, and it therefore seems advisable to give these corpus numbers in this publication.

At the beginning of the Roman section of the register will be found four tombs, 201, 202, 216, and 755. The last named is entirely of the Middle Kingdom but the others had been frequently re-used and contained objects of Middle Kingdom, Roman and Ptolemaic date. To save confusion these have been grouped together as shown and the objects not Roman in date have been indicated. The Middle Kingdom pottery has been drawn and is indicated by serial numbers.

The following abbreviations have been used throughout the register:

N. North.	Pmk. Potmark.	Alab. Alabaster.
E. East.	M.K. Middle Kingdom.	N. Not disturbed.
S. South.	Ptol. Ptolemaic.	P. Partly disturbed.
W. West.	Ro. Roman.	Q. Quite disturbed.
D. Depth.	AR. Silver.	\triangle ^{ar} Triangular.
M. Male.	AES. Bronze.	\square ^{ar} Rectangular.
F. Female.	FE. Iron.	∇ ^{oid} Trapezoid.
C. Child.	TC. Terra-cotta.	ϕ Photograph given.

All measurements in centimetres. For the symbols used in the column marked Attitude see Pl. xlii.

ADDITIONAL NOTE.

In the shaft of tomb 401 were found two pots of type 99 D, which were inscribed in Greek and Demotic (Figs. 2, 3). It is not absolutely certain that these pots belong to the grave, but the date corresponds with that already allotted to the cartonnage. Professor Griffith submitted our tracings to Professor A. S. Hunt, who has written a note on the Greek of which the following is the substance.

Fig. 2 reads $\beta\alpha\lambda$. $\beta\alpha\lambda$ could stand for various things and a guess would

Ἡγησιμάχου

have little value. Ἡγησίμαχος is an uncommon name, apparently new for Egypt; at any rate it does not occur in Preisigke's *Namenbuch*. The lettering seems to be early, possibly 2nd century B.C. In the Greek portion of Fig. 3 only the τ at the beginning is certain; possibly $\tau\eta\alpha$ or $\tau\alpha\mu$ or $\tau\alpha\iota\lambda$.

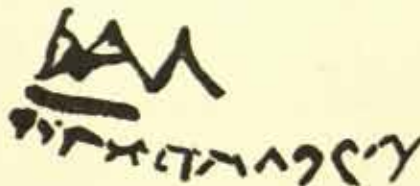


Fig. 2

Professor Griffith has kindly read the Demotic of Fig. 3 for us: *Hr-wd s Hr*,
 "Harwoz, son of Hor."

We are very grateful to Professors Griffith and Hunt for this assistance.

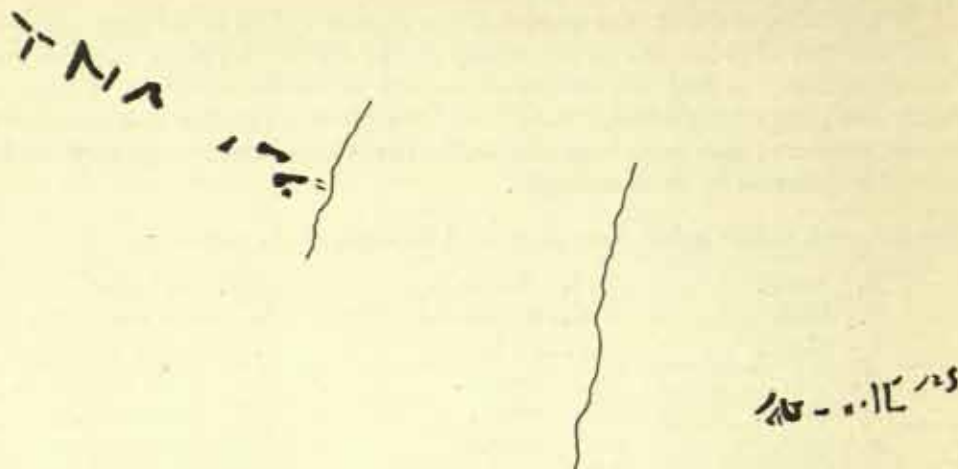
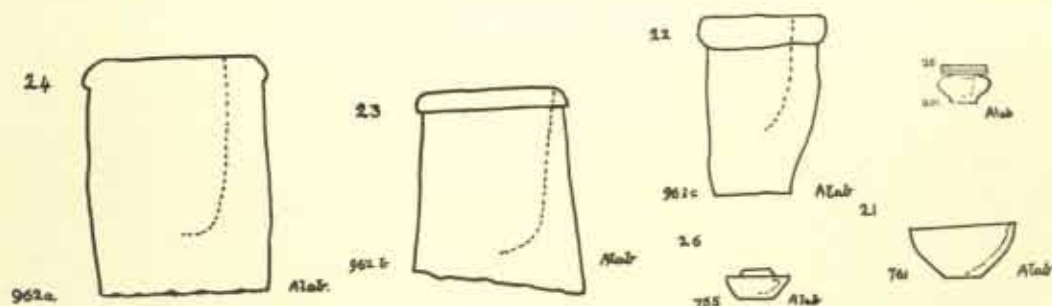
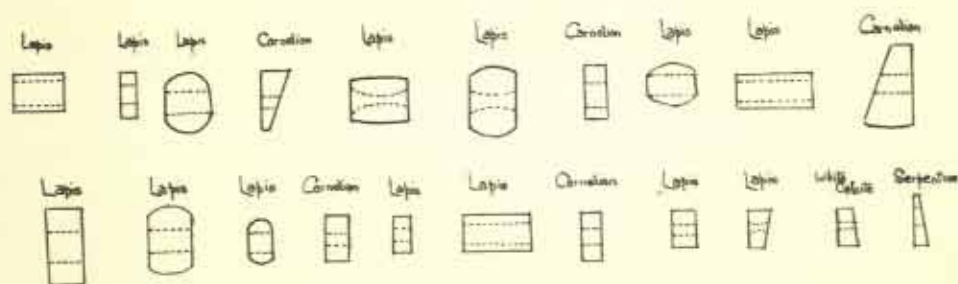
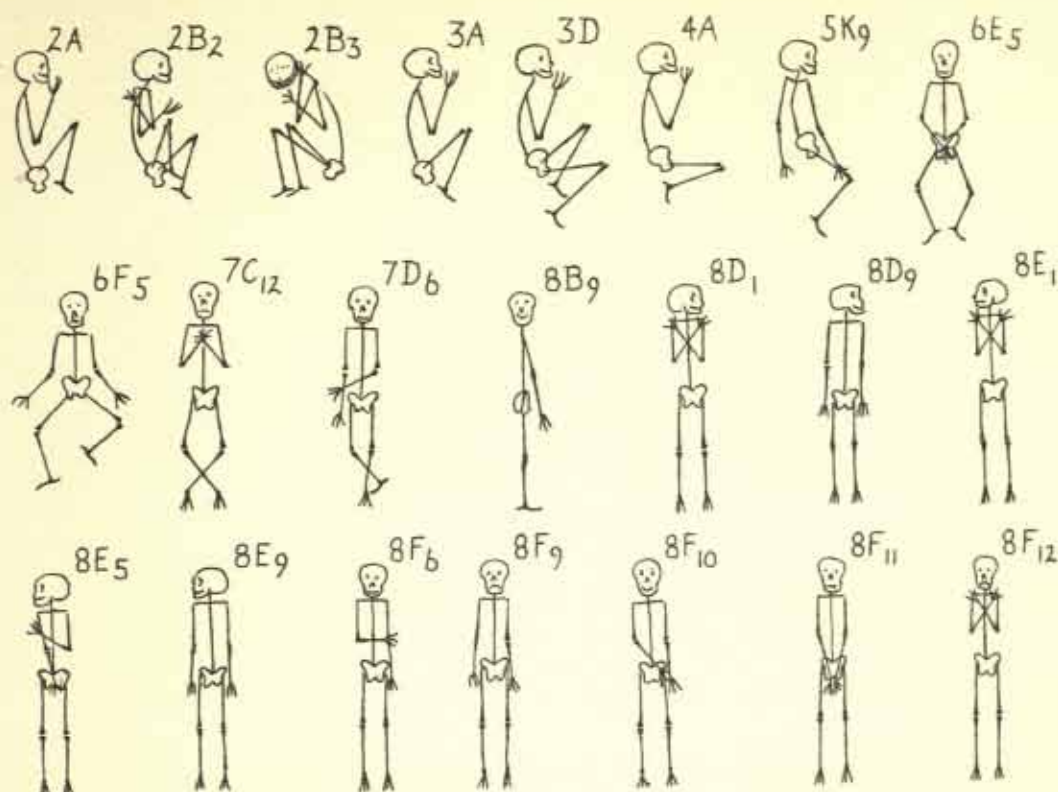


Fig. 3.

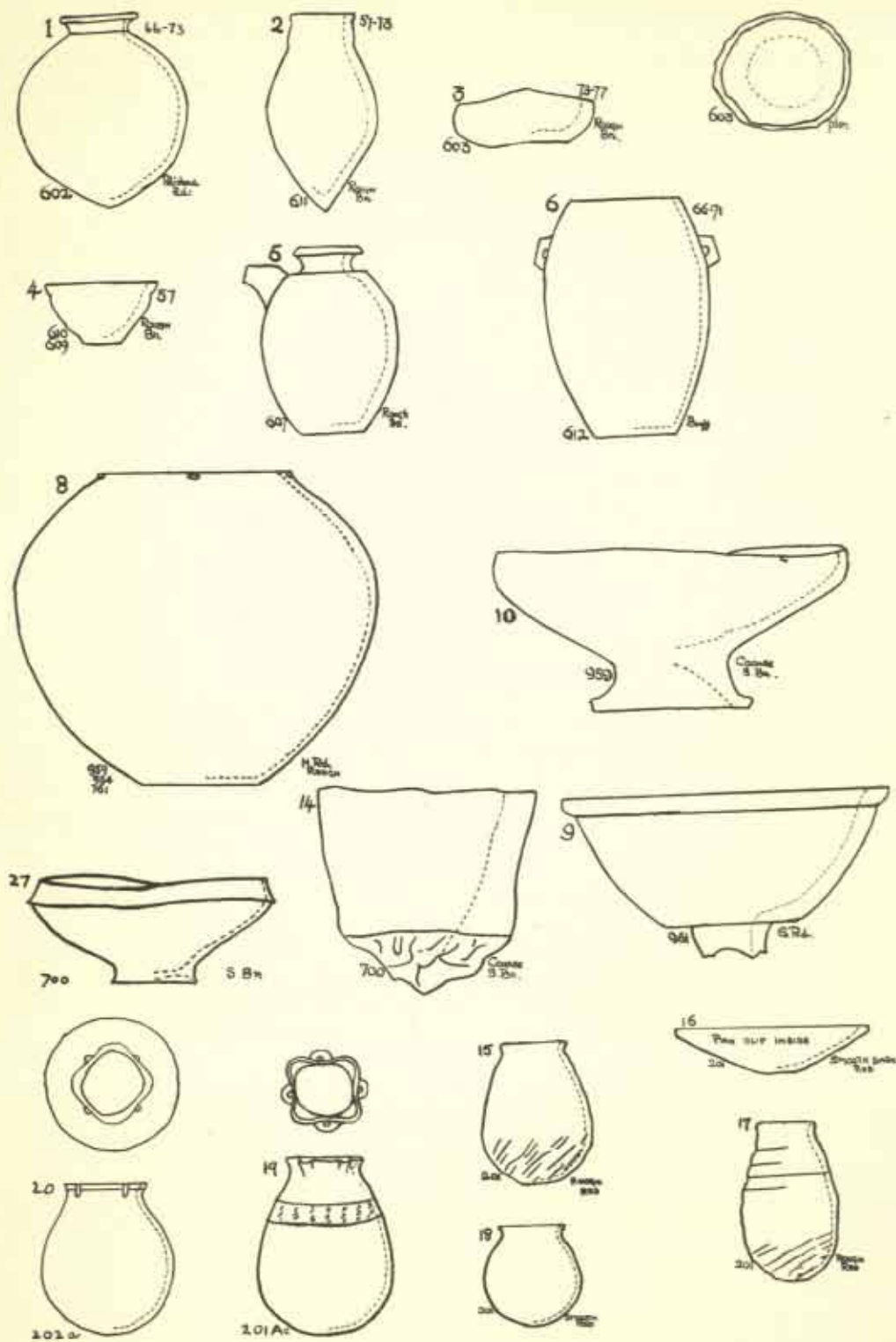


Armant.

Positions of bodies.

Predynastic beads, grave 609. Scale 1/2.

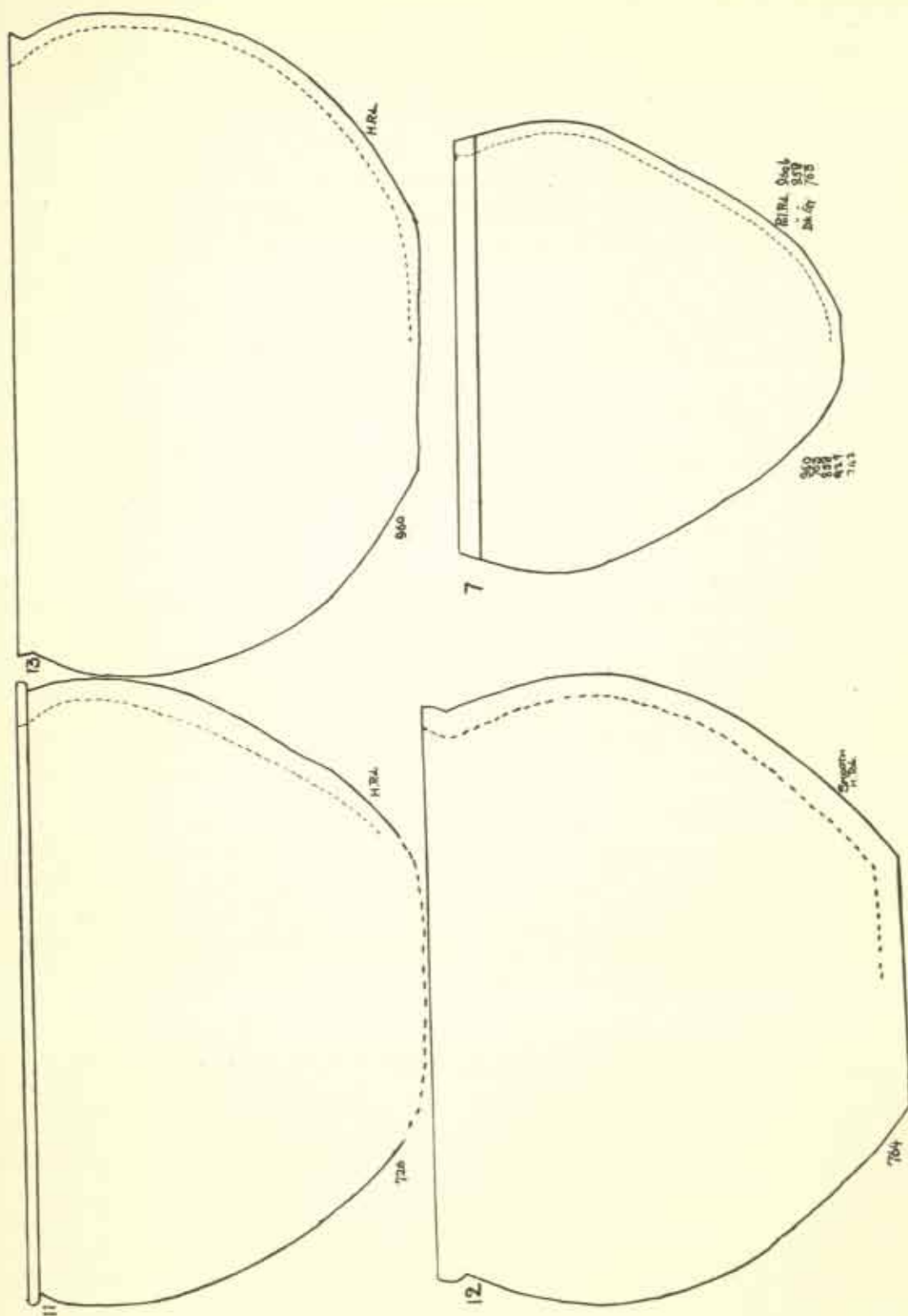
Alabaster vessels. Scale 1/2.



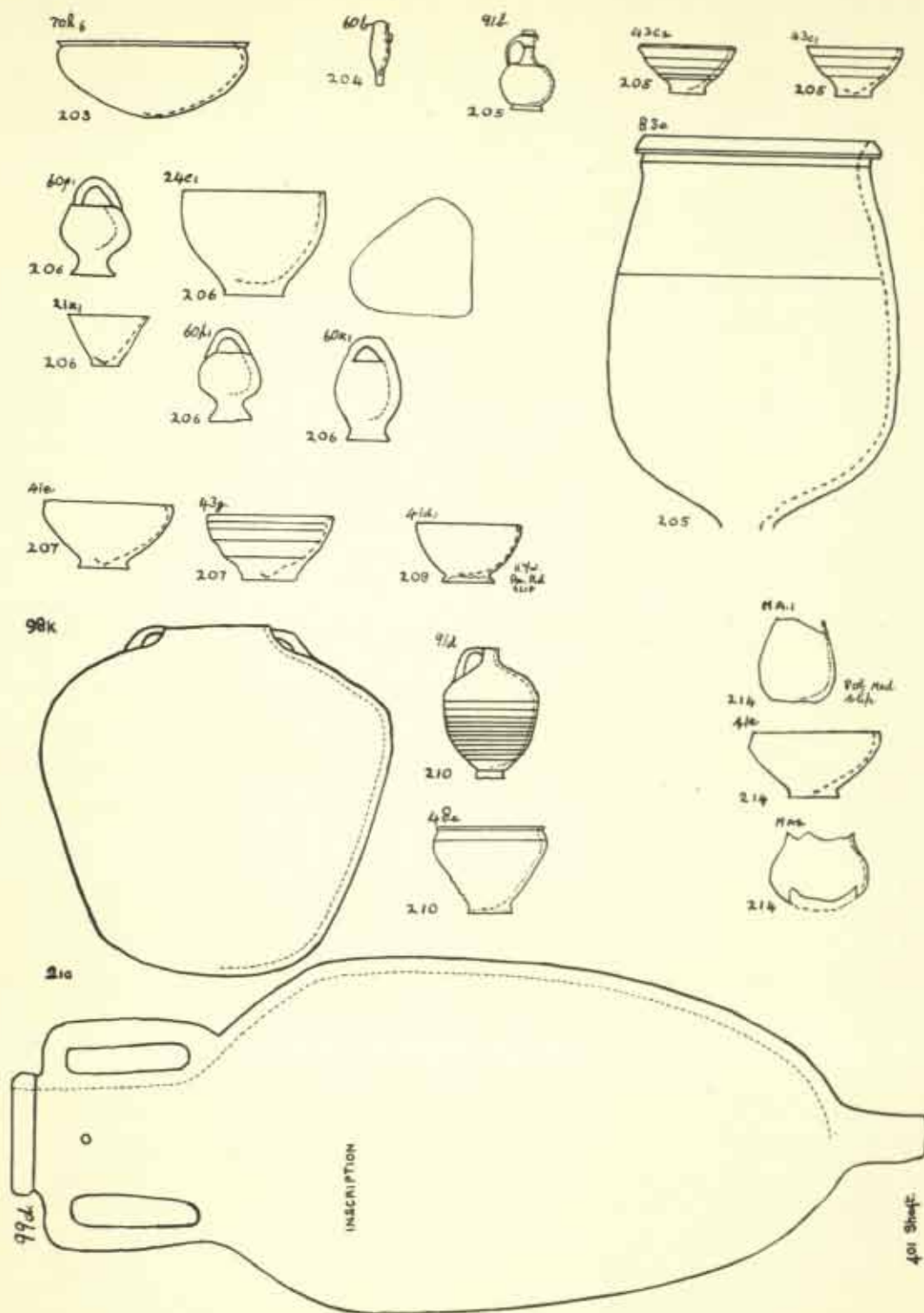
Armant.

Pottery, predynastic to Middle Kingdom.

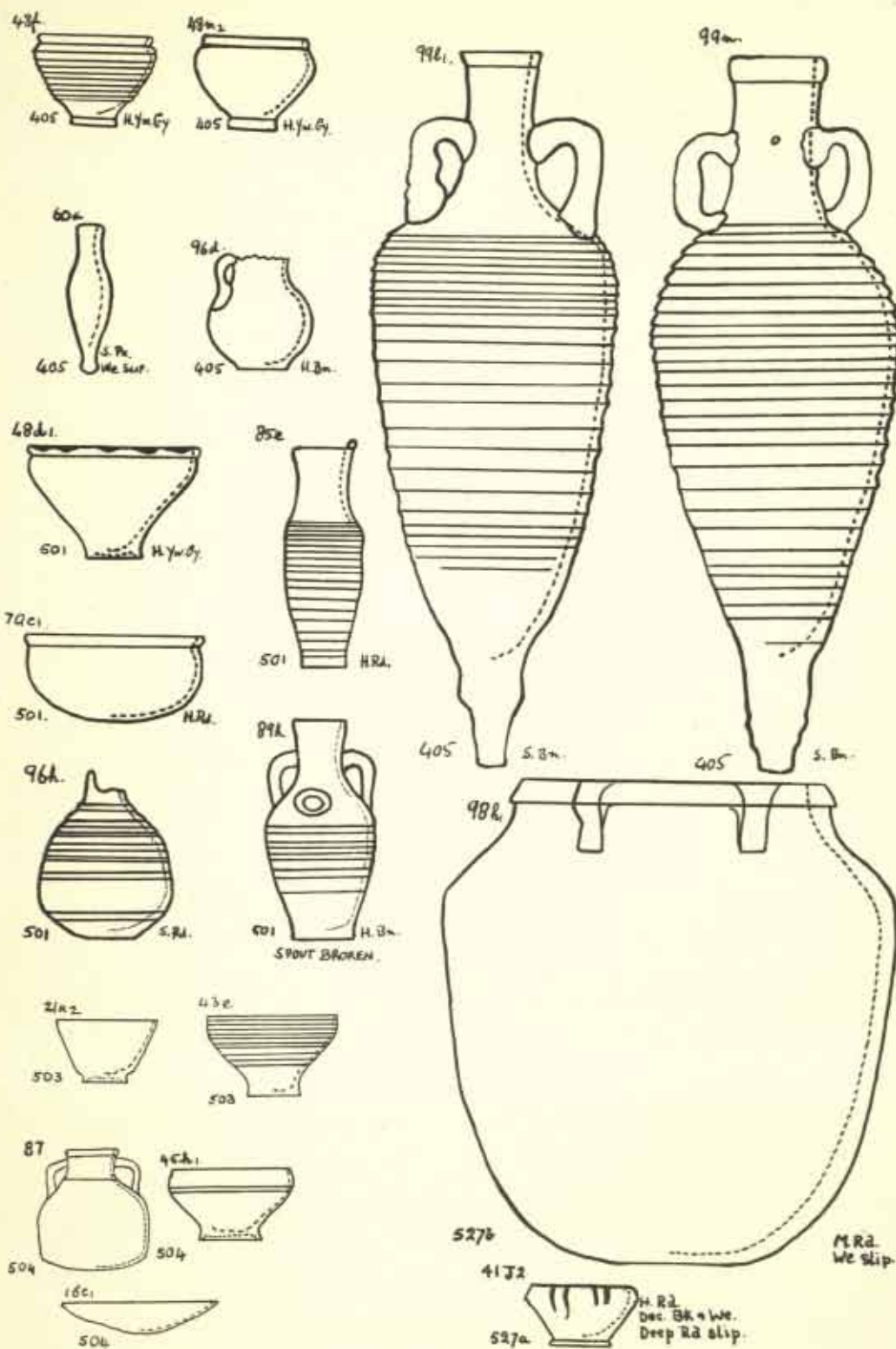
Scale $\frac{1}{2}$.



Armant. Burial-jars, II-IV Dyn. Scale 1/2.

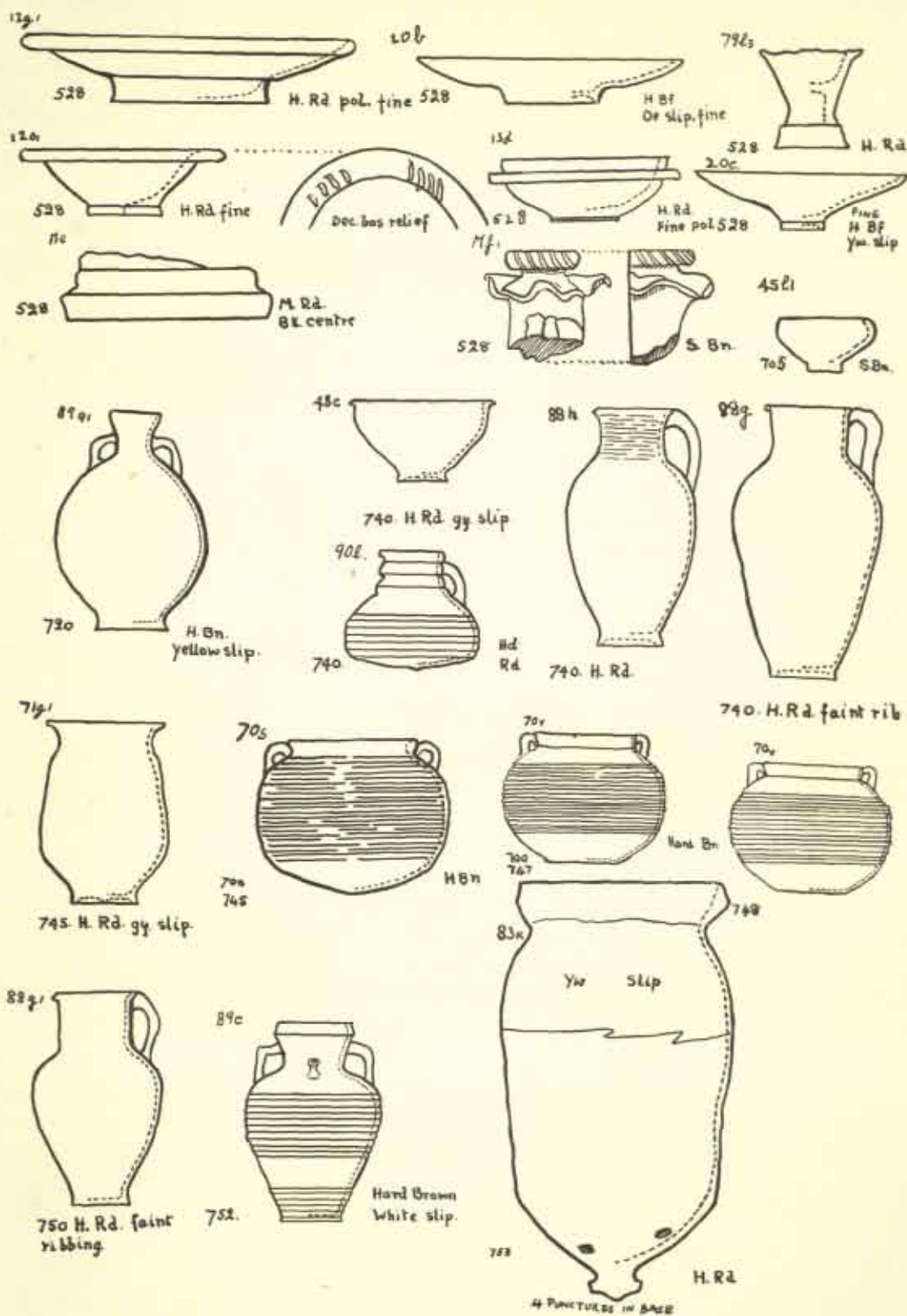


Armant. Roman pottery, graves 203-401.
Scale $\frac{1}{8}$.

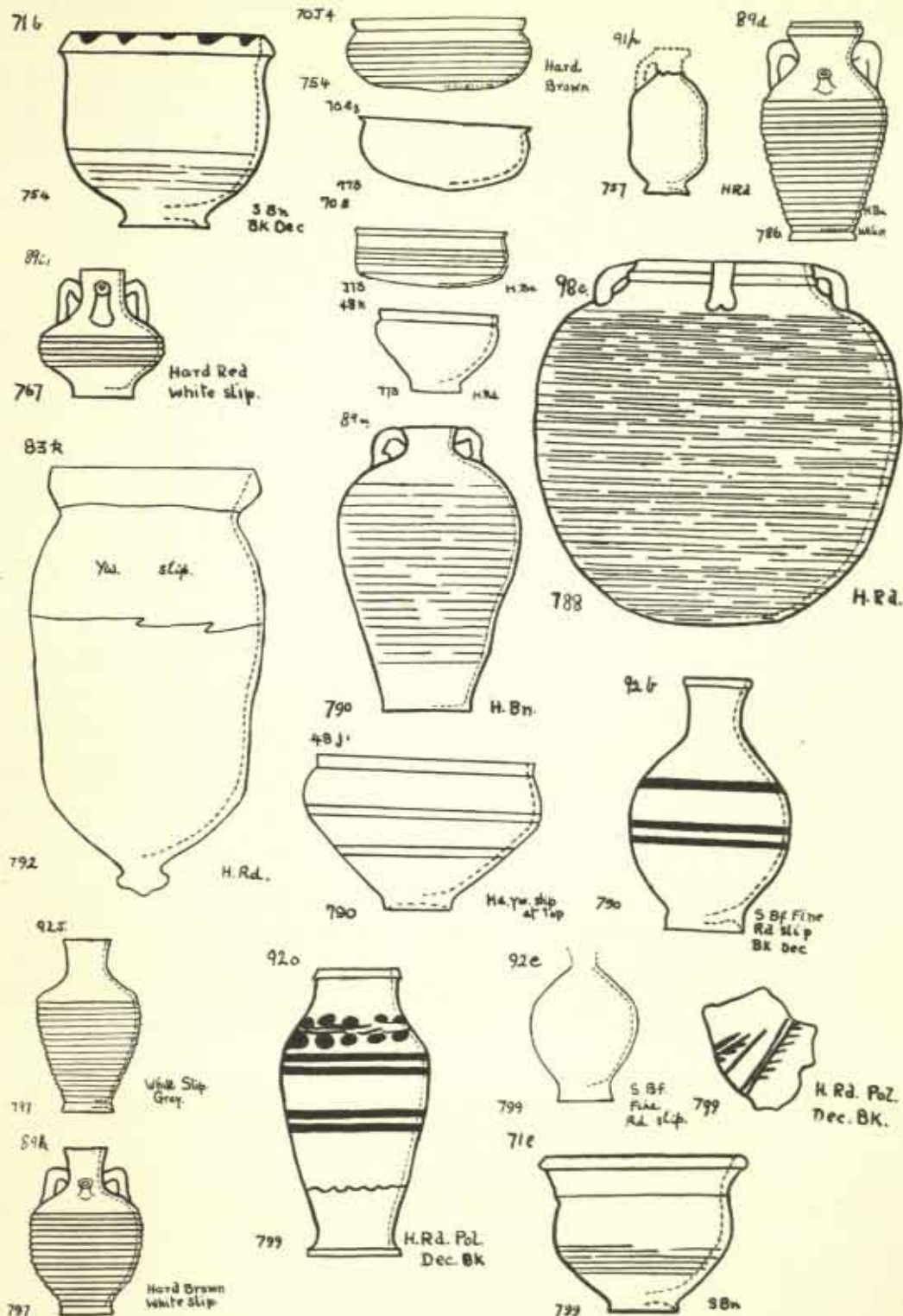


Armant. Roman pottery, graves 405-527.

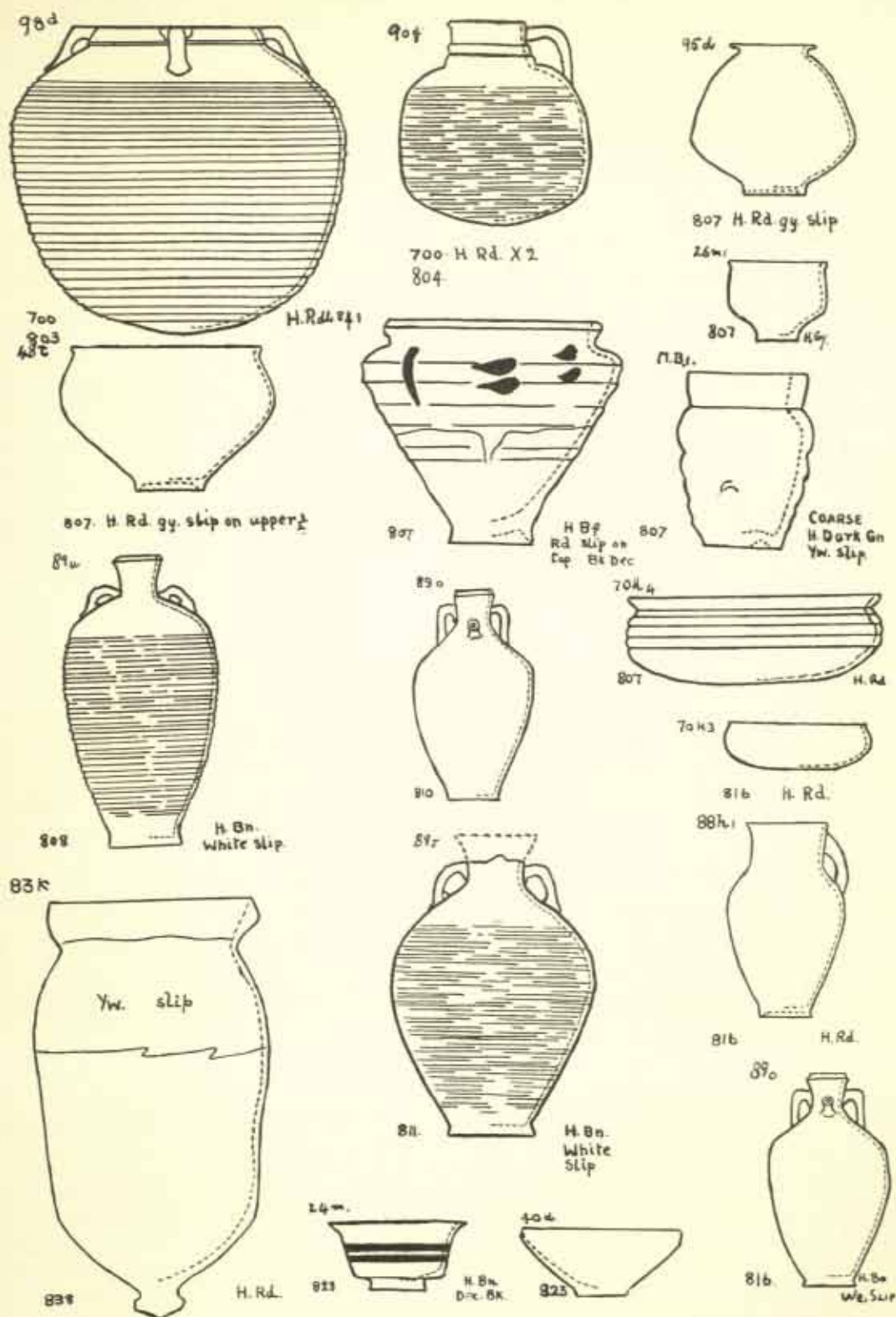
Scale $\frac{1}{2}$.



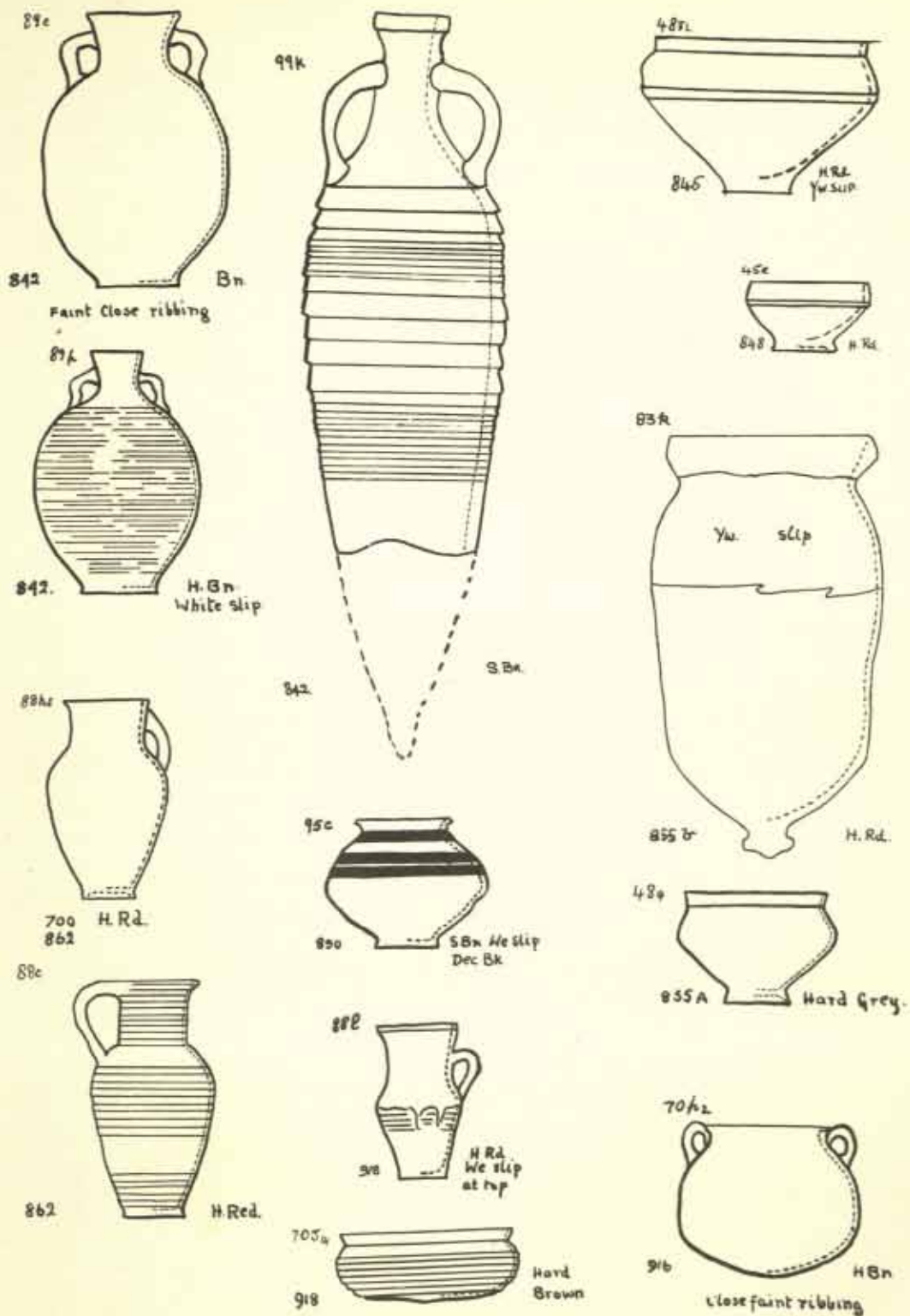
Armant. Roman pottery, graves 528-753.
Scale $\frac{1}{2}$.



Armant. Roman pottery, graves 754-799.
Scale h.

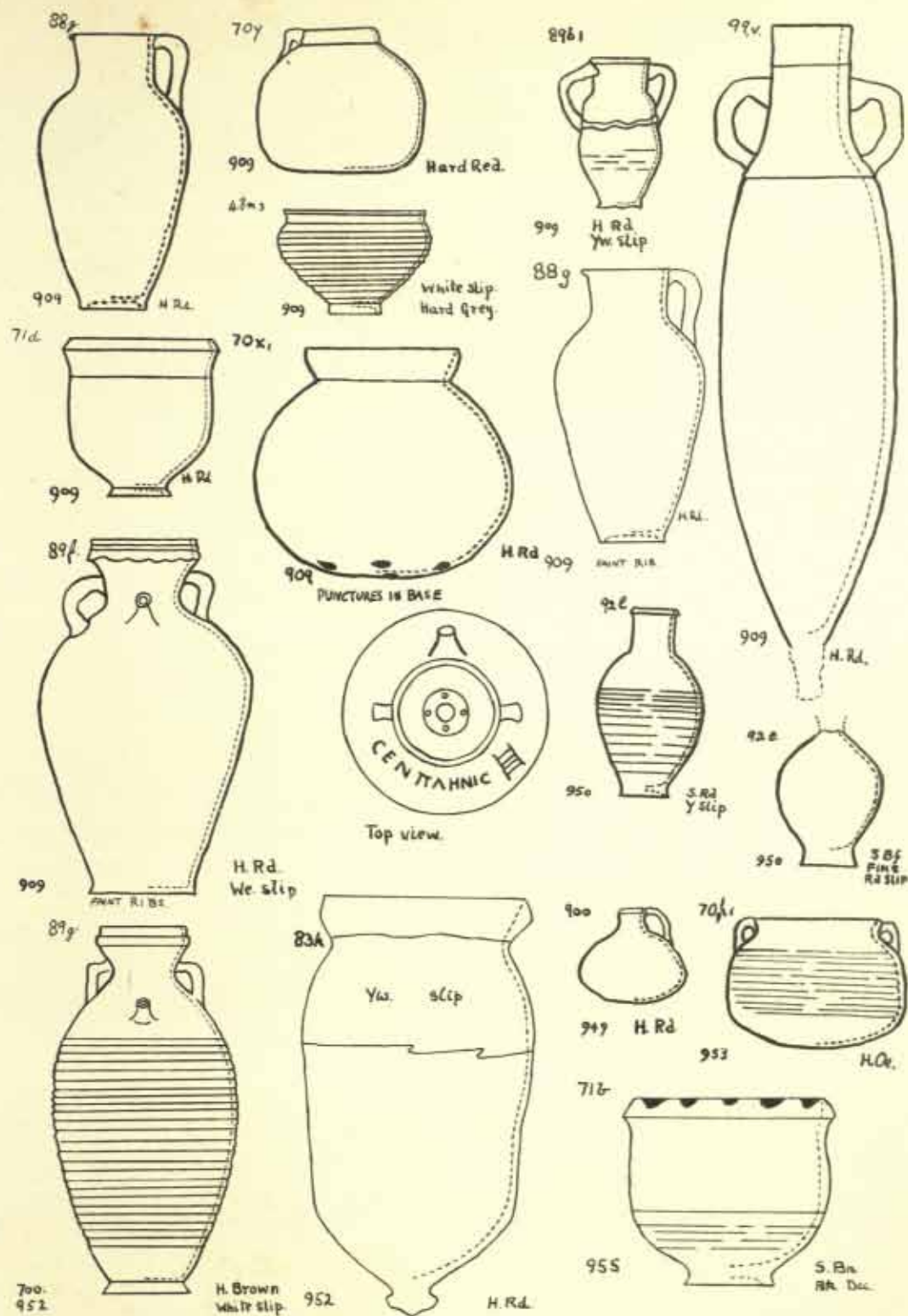


Armant. Roman pottery, graves 803-838.
Scale 1/2.

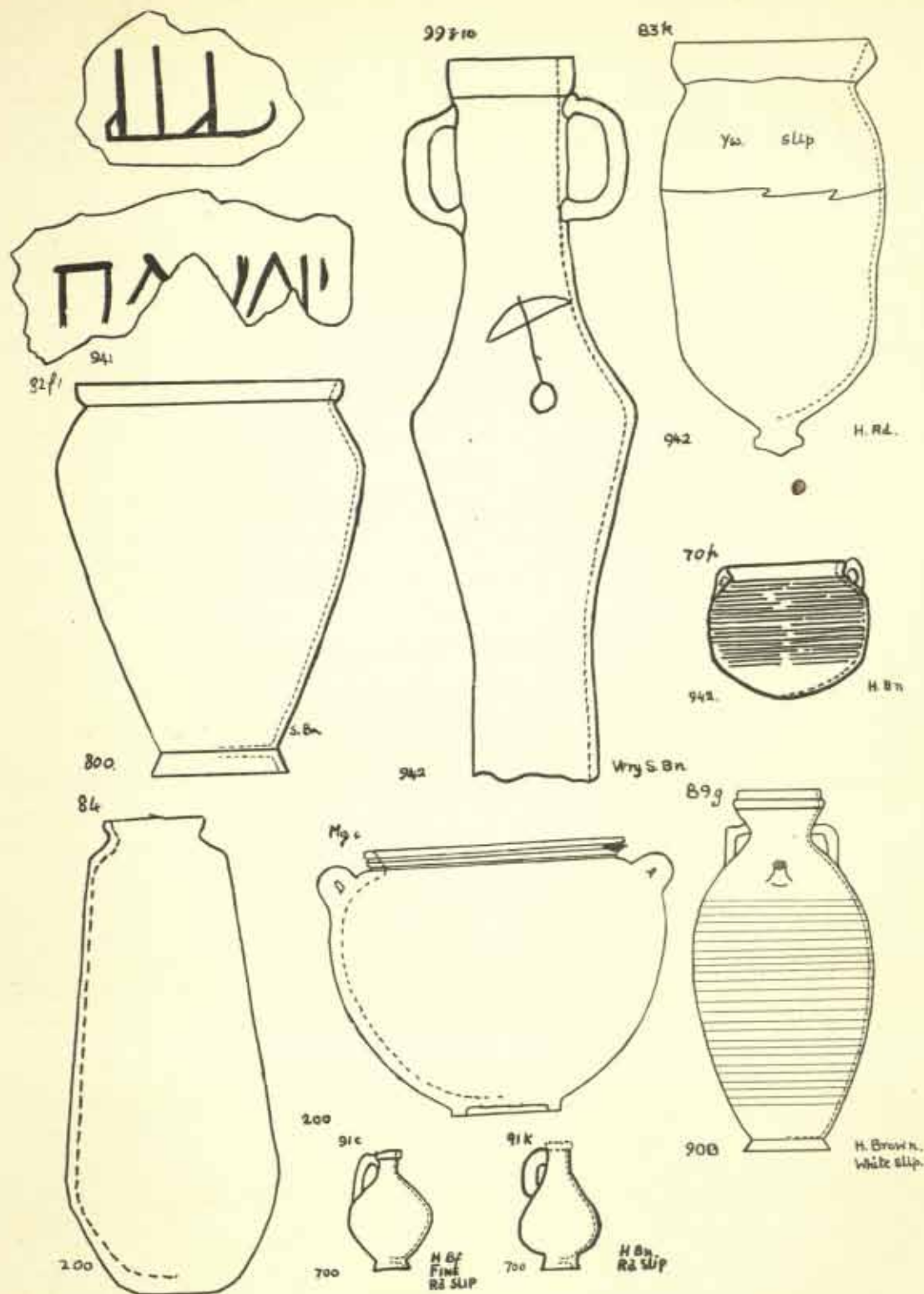


Armant. Roman pottery, graves 842-918.
(Group 909 is on Plate LI)

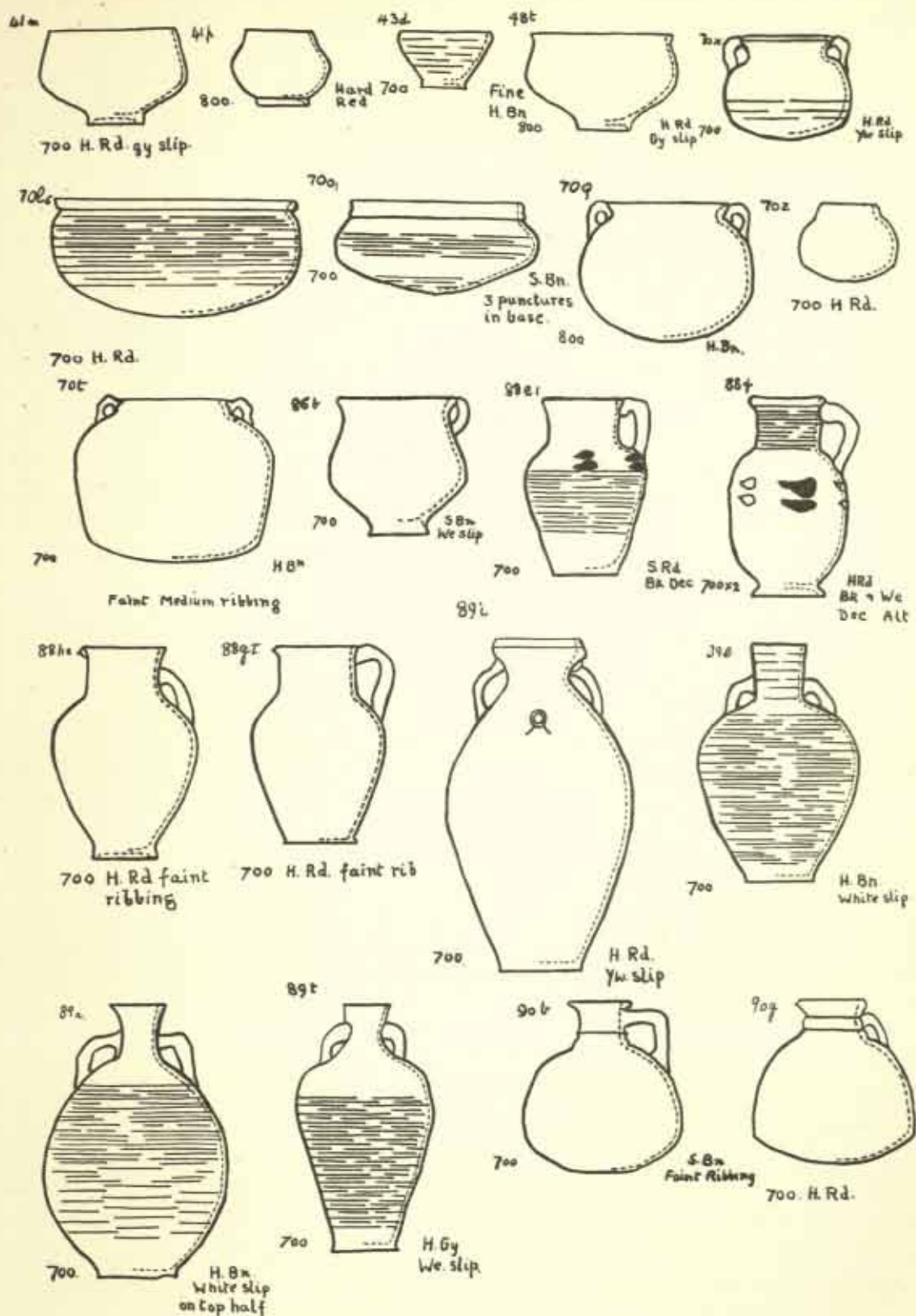
Scale $\frac{1}{2}$.

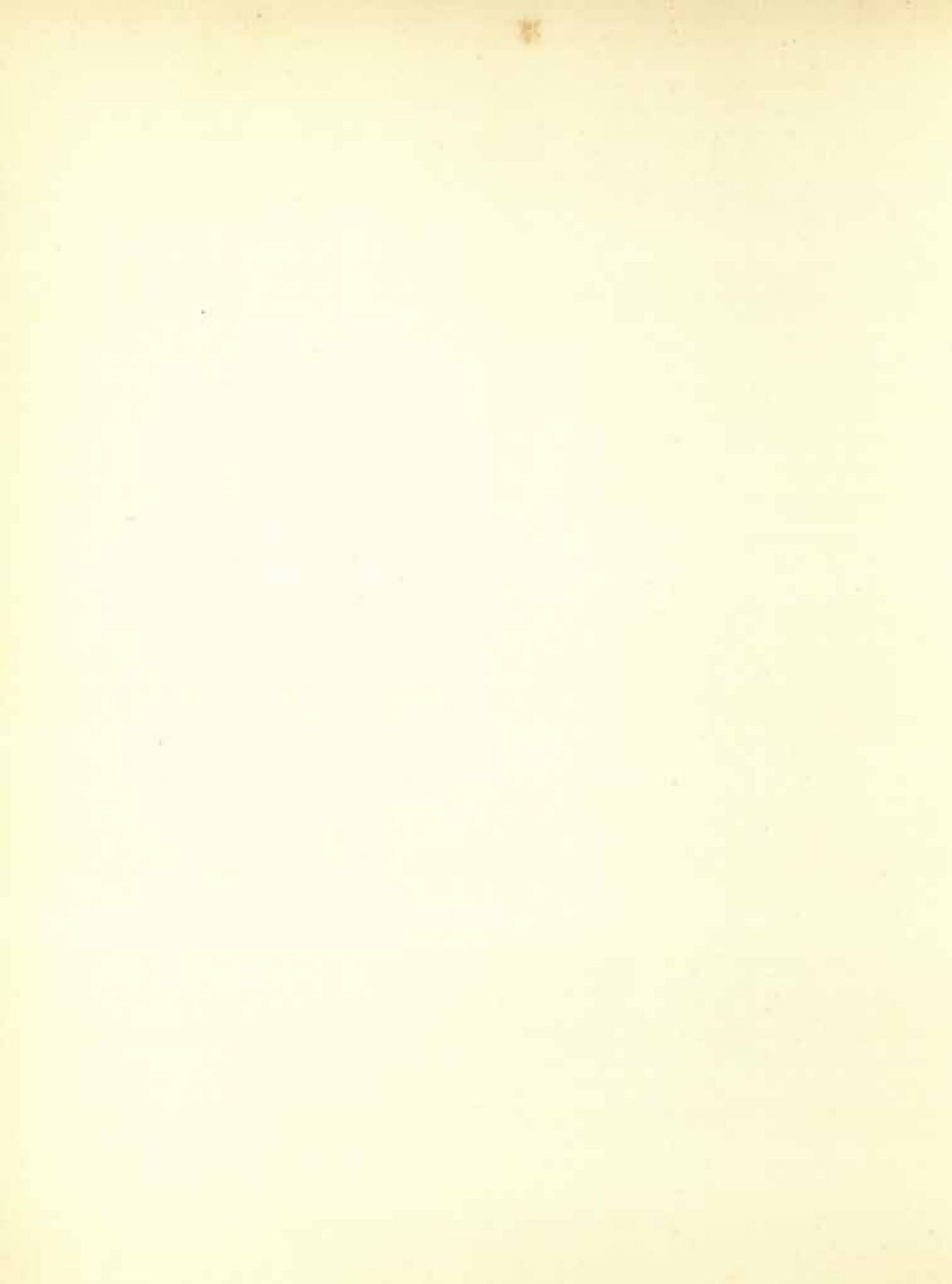


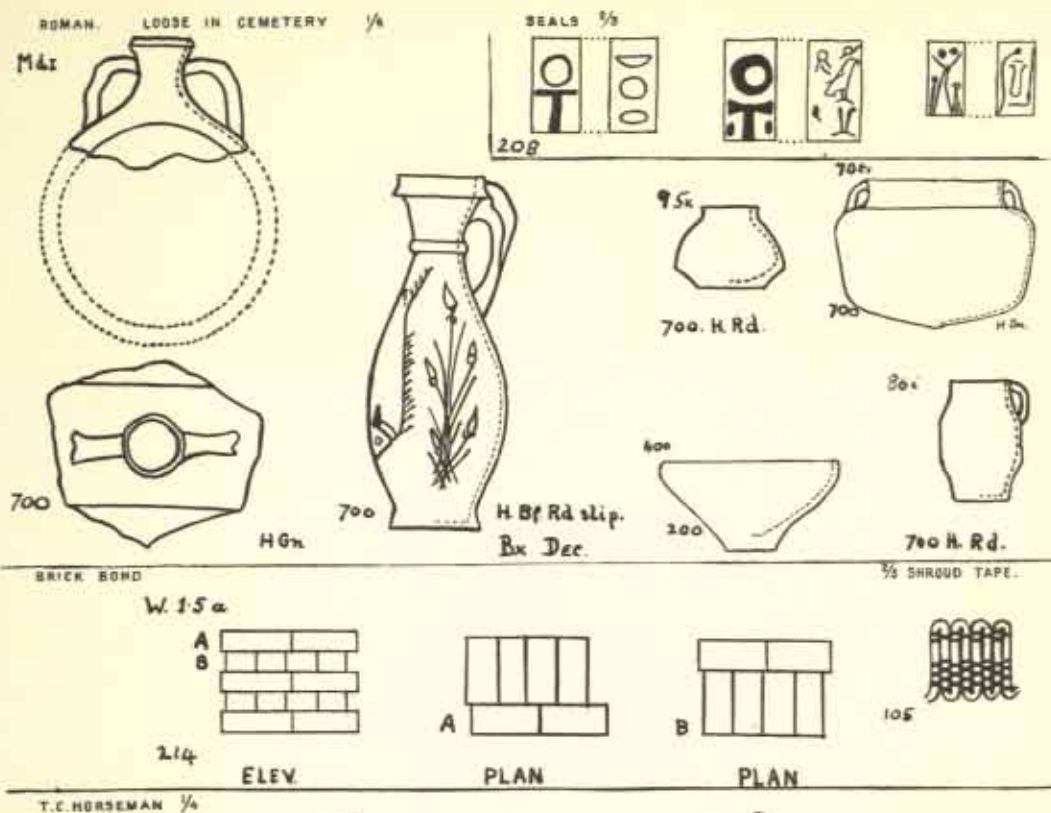
Armant. Roman pottery, graves 909-955.
(916, 918 are on Plate L; 941-942 on Plate LII)
Scale h.



Armant. Roman pottery, graves 941-942, and loose in cemetery.
Scale 1/2.







ANALYSIS of TOMBS															
PERIOD	BODIES	SEX			BODY POSITIONS										
PRE	13	M	F	C	3D ⁿ	4A ⁿ	4A ^m								
		?	?	3	1	1	1								
II-IV	17				2A	2A ⁿ	2A ^m	2B2	2B3 ^m	3A ^m	7A ^m				
			1	8	3	2	2	1	1	1	1				
ROMAN	199				5K9	4E5	7C12	7D6	8B9	8D1 ^m	8D9	8D9 ⁿ	8D9 ^m	8D9 ^m	8E9 ⁿ
		32	33	108	1	2	2	1	1	1	1		2	1	3
		AND 26			8E9 ^m	8F6	8F9	8F9 ⁿ	8F9 ^m	8F9 ^m	8F10	8F11	8F11 ⁿ	8F12	8F12 ^m
		ADULTS			1	1	57	21	9	15	1	4	2	4	2
13 ROMAN BODIES HAD SHERDS OVER THE HEAD															

Armant.

Miscellaneous objects and analysis of tombs.

[illegible]

B.M. 6969.A.

10 5

B.M.6969.B.

5

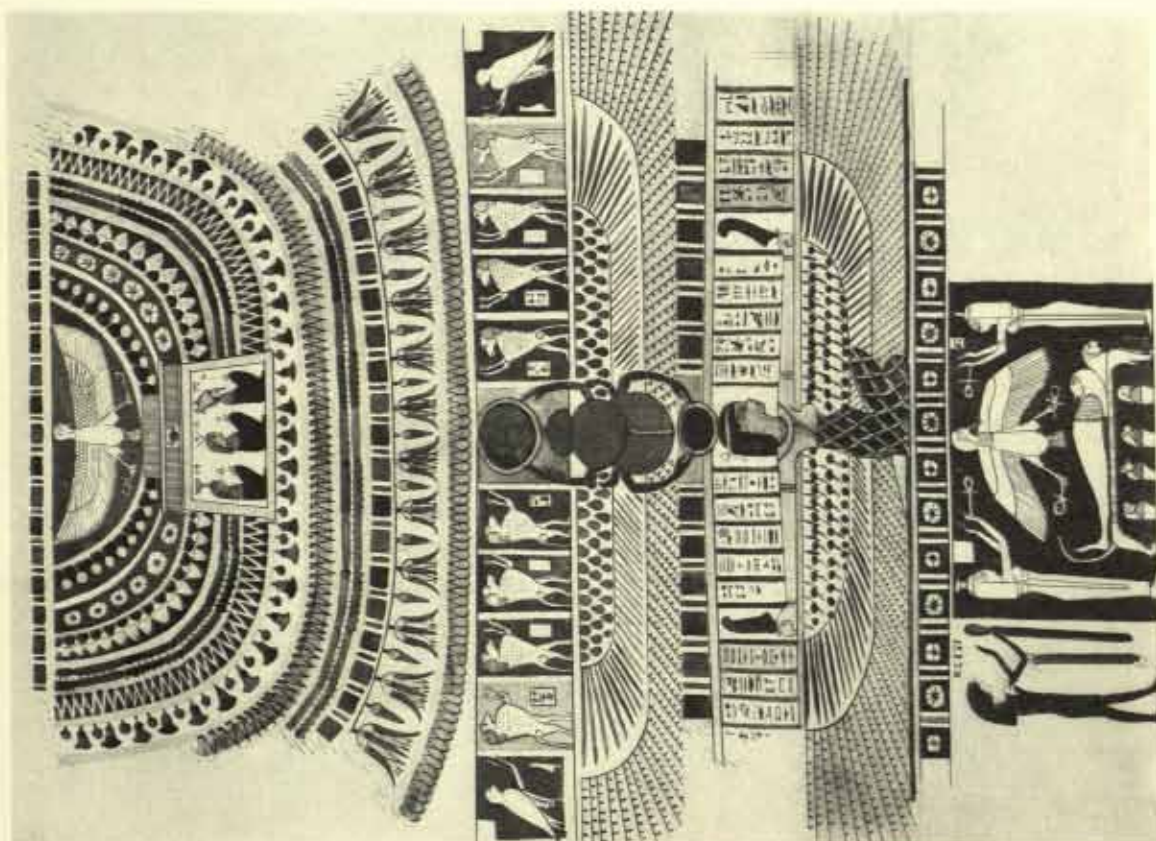
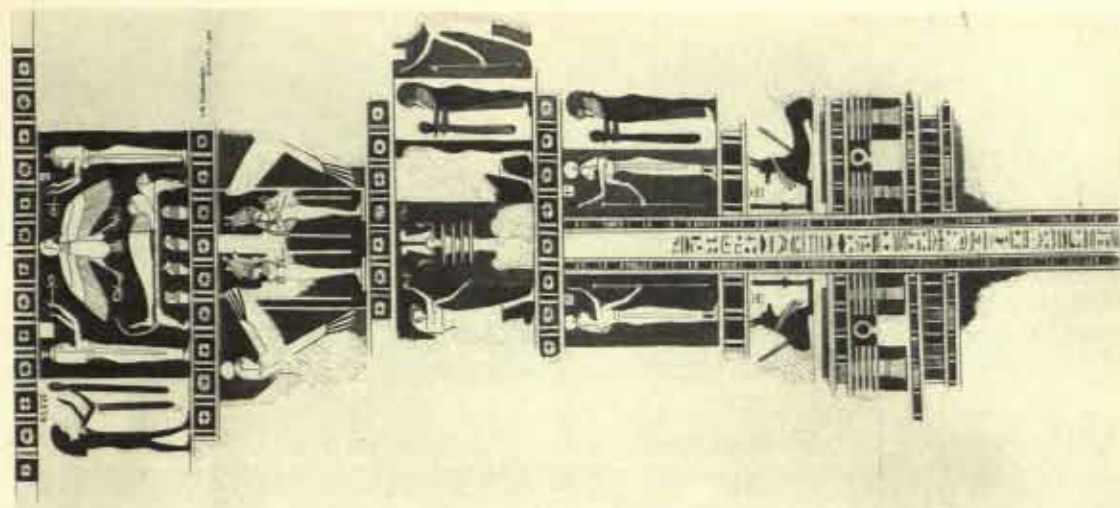
15

10

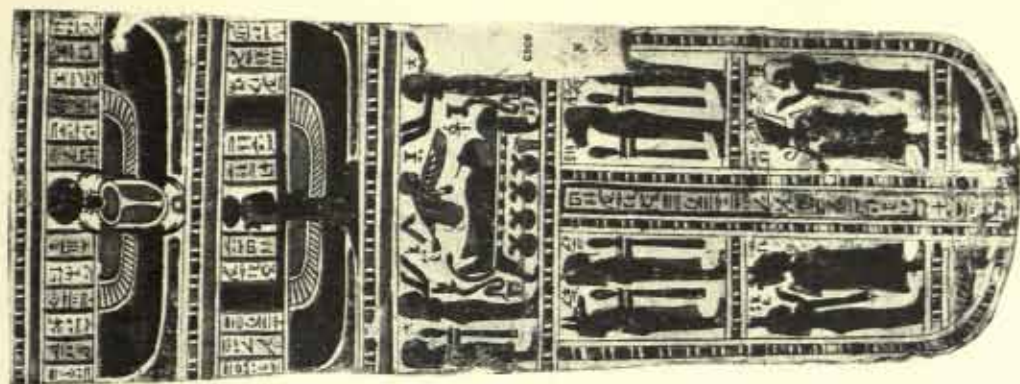
AR.403.B

8.5
cm
lost

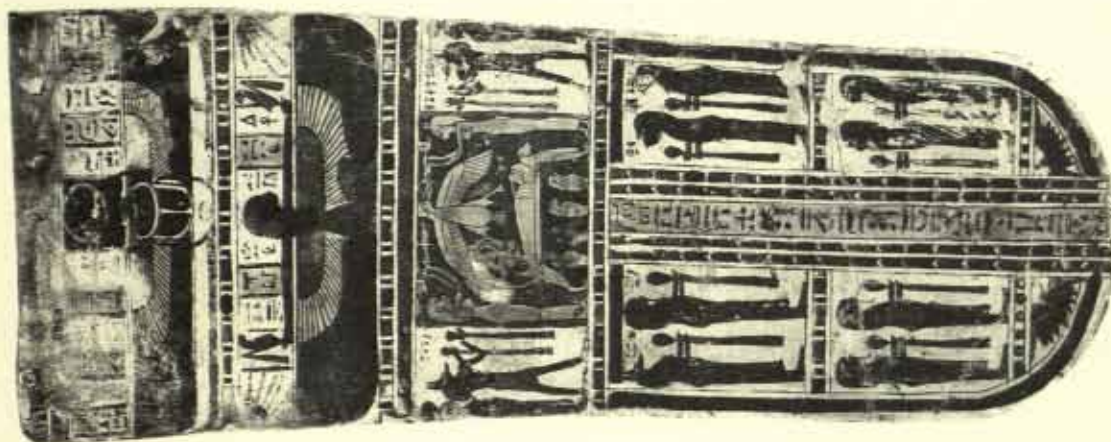
Ar
403.8



Ptolemaic Cartonnage, 403 B. 1. *Scale c. 1/4* 2. *Scale c. 1/4*



6968



6969



6965

Ptolemaic Cartonnages in the British Museum. *Scale c. 1/4.*



1



2



3



4

1. Type of tomb in Cemetery 500. 2 & 3. Terracotta coffin, 771. 4. From lid of coffin, 403 B.



1



3



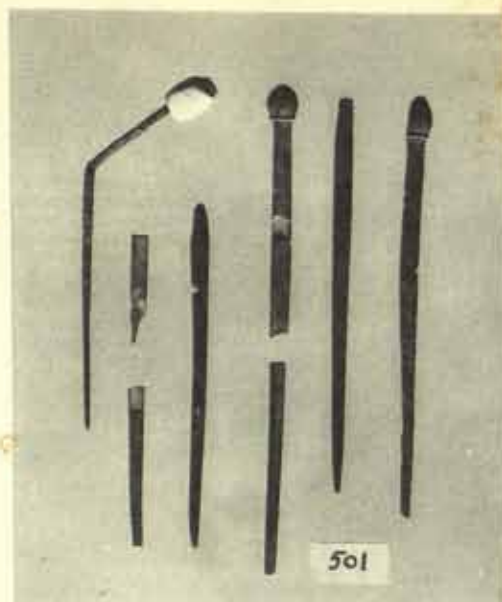
2



4

1. Pottery from 909.
3. Flint picks, 201 : *Scale e. 1.*
2. Alabasters from 766.
4. Terracotta figure, 799.





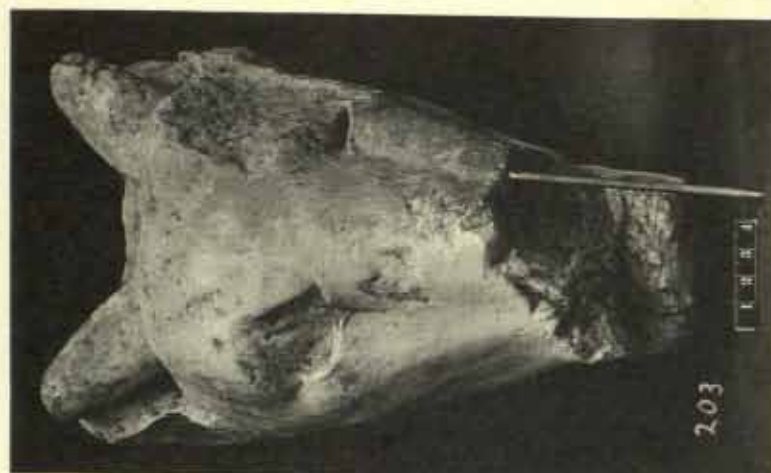
1



2

Armant.

1. Bone and bronze pins. *Scale 1/2.*
2. Buchis Amulets. *Scale 1/2.*



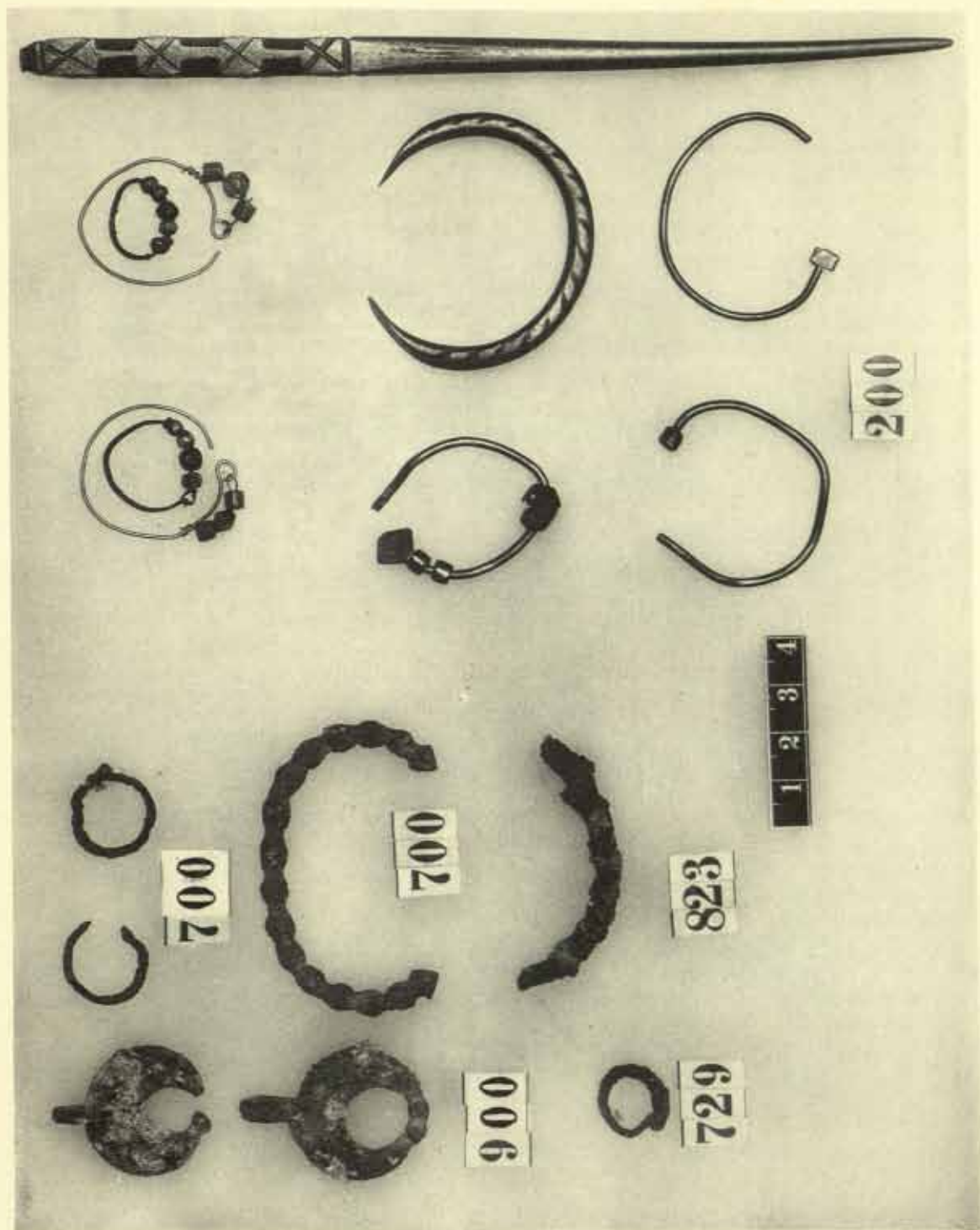
2



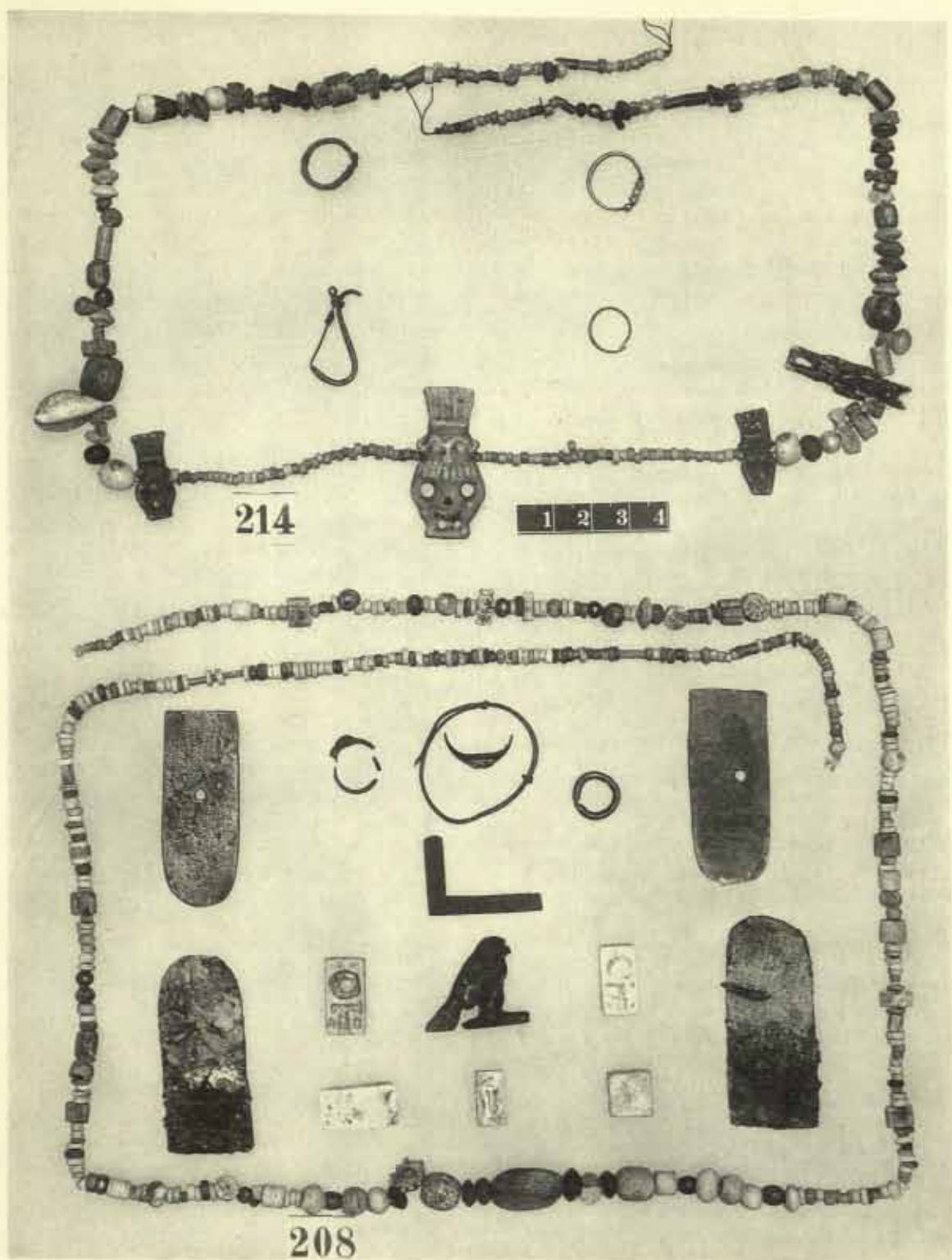
1

Armant.

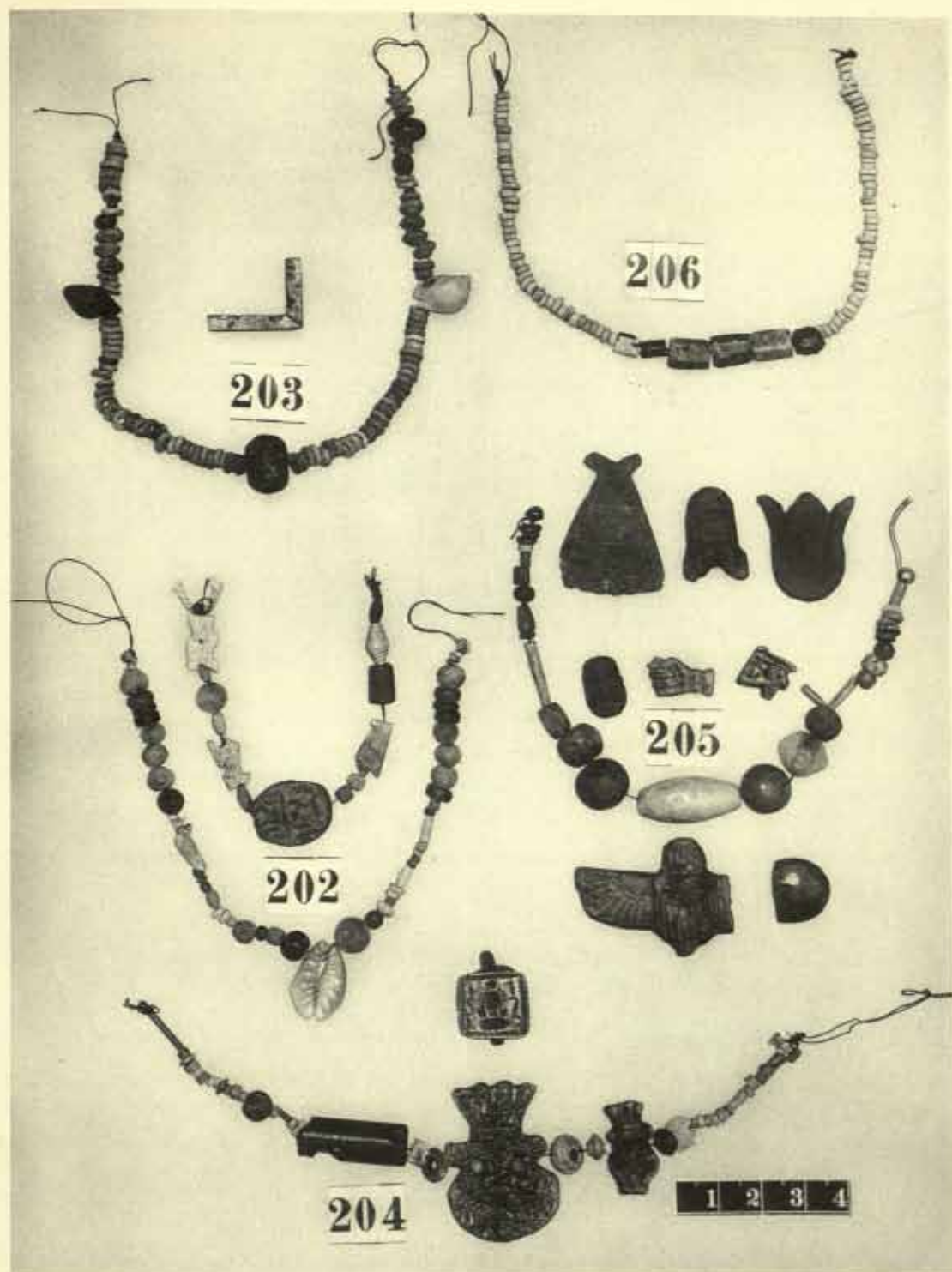
1. Objects from Cemetery 200.
2. Bull's head in limestone.



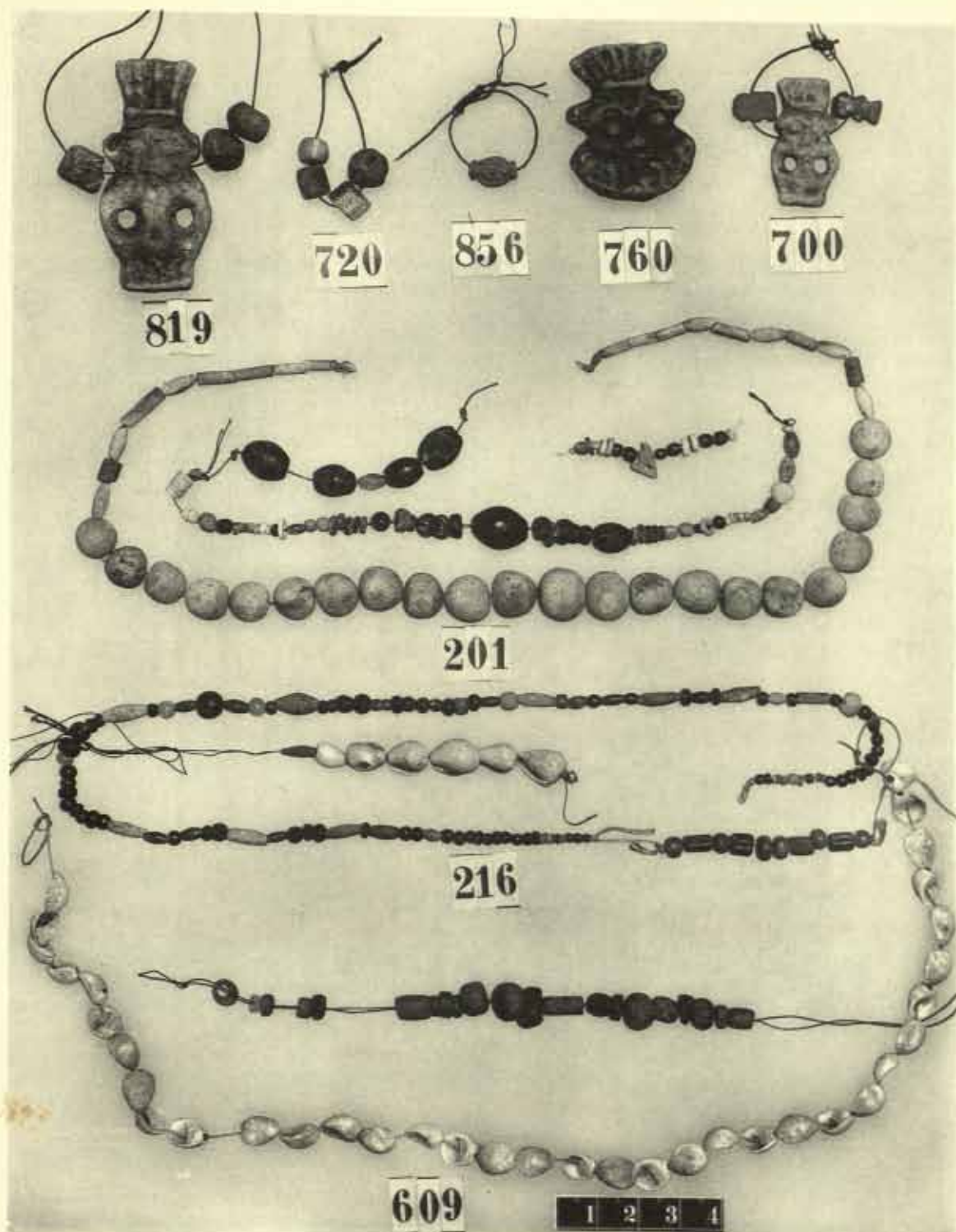
Armant.
Objects of metal.



Armant.
Tomb groups. Cemetery 200.



Armant.
Tomb groups. Cemetery 200.

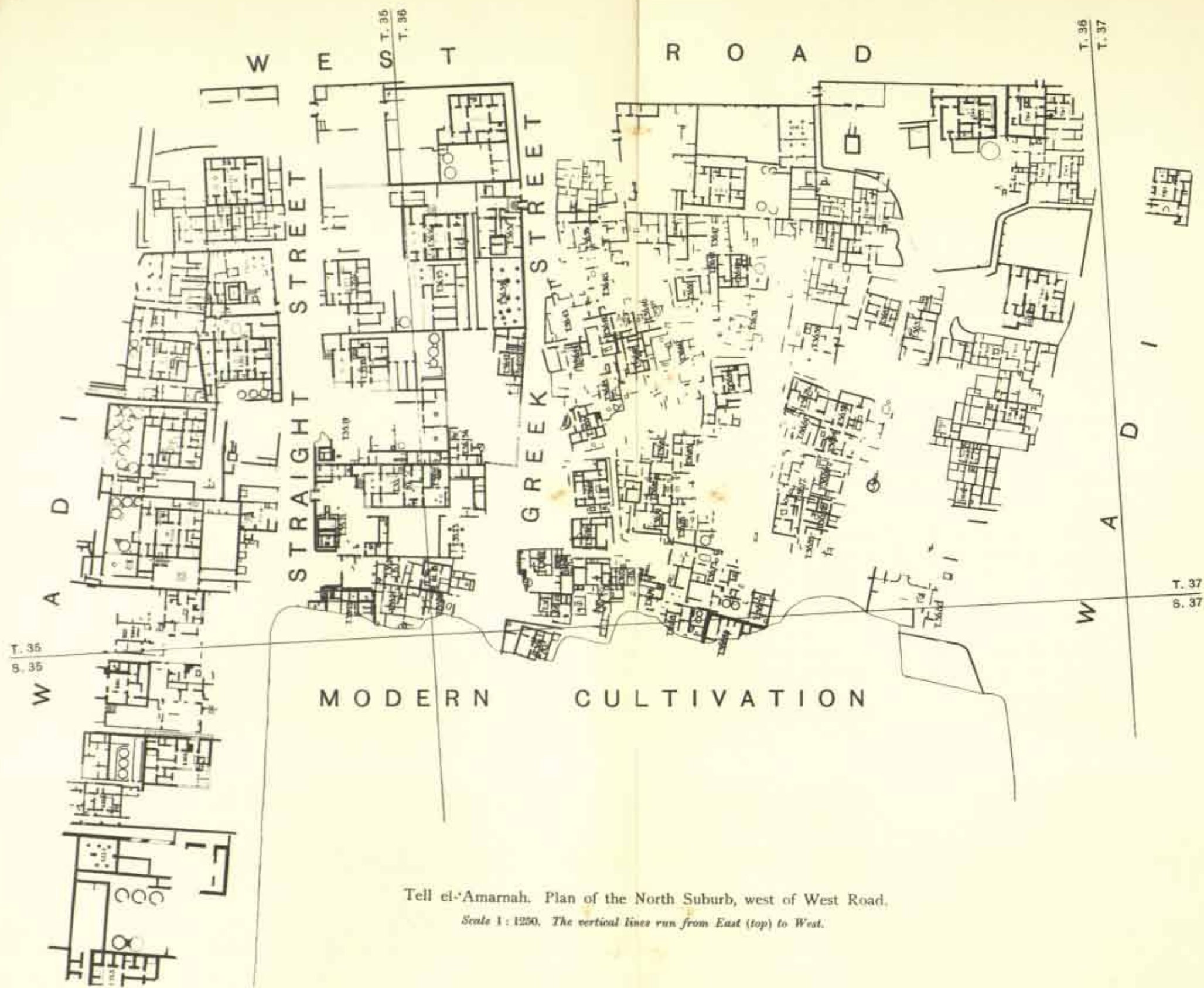


Armant.
Beads.

TOMB NUMBER	GRAVE N E D	AZIMUTH	ALTITUDE	SEX	POTTERY	S.D.	STONE	BEADS	OTHER OBJECTS AND REMARKS	COFFINS, BRICKS, TOMB TYPES	DISTURBED SEE SECTION	TOMB NUMBER
602	HOLE	70	70	C	R.25c, R.25c, B.50	1	66-73					602
603 A	HOLE	115		C	R.25a, 34a, 34c	3	73-77	BRALT ARDNER				603 A
604	HOLE	65		C	P.16a, 22, 8a		37-38					604
606	HOLE	70	180	4A	R.25a, 69a, 81a, 81c		70-71					606
607	HOLE	60	90	4A	R.25a, 69a, 81a, 81c		65-68					607
608	HOLE	30	102	3B	R.25a, 69a, 81a, 81c		57-71					608
609	HOLE	65	?	C	P.24m, 3, D.67g, R.66a, 81c	4	57	PEBBLE	✓ (DRAWN) 8	NERITA SHELLS 8		609
610	HOLE	50	60	?	R.25a, 81c, 94g, 2	4	56-58					610
611	55 100	70	105		R.25a, 81c, 94g, 2	2	57-73					611
612	HOLE	80			R.25a, 81c, 94g, 2	6	68-77					612
613	HOLE	90	55		P.24m, 3, R.65c		58-60					613
724	92 15 139	50 89 70	5	242	3A	?						724
726		60 50 27		2A	2A	?						726
743		39 39 40		2A	2A	F						743
761												761
763		50 60 60		220	2A	C						763
764		50 50 75		330	330	C						764
766	100 80 305	95 45 40	NE	320	320	C						766
771				240	2A	?						771
858		55		20	2A	?						858
929		60		25	2A	C						929
954		55		250	2A	?						954
959		80										959
960 A		62										960 A
B		55										B

TOMB NUMBER	SHAFT N E D	CHAMBER N E D	AZIMUTH	ALTITUDE	SEX	POTTERY	BEADS	METAL	OTHER OBJECTS AND REMARKS	COFFINS, BRICKS, TOMB TYPES	DISTURBED SEE SECTION	TOMB NUMBER
201 A	SEE	PLAN				M.K. 15, 16, 17, 18, 19	M.K. 20		FRAG. BLUE GLAZE, M.K. 25	PTOL. FRAGS. WOOD COFFIN	Q 13	201 A
B									FRAGS. GREEN GLAZE, 9 FLINT PCKS.	M.K. 8		B
202	SEE	PLAN				M.K. 20	M.K. 20		FRAGS. GREEN GLAZE, 9 FLINT PCKS.	PTOL. FRAGS. WOOD COFFIN	Q 13	202
216	SEE	PLAN							FRAGS. GREEN GLAZE, 9 FLINT PCKS.	PTOL. FRAGS. WOOD COFFIN	Q 13	216
755		100 100 125	20						FRAGS. GREEN GLAZE, 9 FLINT PCKS.	PTOL. FRAGS. WOOD COFFIN	Q 13	755
103 A		40 160 89	243		F	SHERD			EMBROIDERY		Q 2	103 A
105		40 160 84	243		F	SHERD			SHERD		Q 2	105
110 A		45 170 84	243		F	SHERDS			WEAVING		Q 2	110 A
112 A		30 165 99	241		F	SHERDS			EMBROIDERY		Q 2	112 A
B									EMBROIDERY		Q 2	B
114		40 180 83	248		M	SHERDS			EMBROIDERY		Q 2	114
115		30 80 96	240		C				EMBROIDERY, WEAVING		Q 2	115
203	SEE	PLAN				70AL	✓ 8	GILDING	LIMESTONE BUL. 5 HEAD 8		Q 3, 10	203
204	SEE	PLAN				40B, POT HANDLE EPINXATES	✓ 8	2 AB. RINGS, 2 RINGS	BRICKS 32x13x9		Q 3, 9	204
205	SEE	PLAN				43C, 1, 2, 3, 8E, 91B	✓ 8	AB. ARMOUR SCALES, EARRING; FISH HOOKS, LOTUS	GREEN GLAZE BOWL, 1C		Q 3	205
206	SEE	PLAN				21K, 24C, 1, 60K, 1, 1, 1, 1	✓ 8	AB. COIN, FE. RING, RING	CARICATURE AND BAU 80 8		Q 3, 10	206
207	SEE	PLAN				41E, 43G	✓ 8	AB. ARMOUR SCALES, FE. NAILS	SEKHMET, TAURT PAIENCE 8		Q 3	207
208	SEE	PLAN				41D, 1	✓ 8	AB. 2 RINGS, 2 RINGS	FRAG. PLASTER & GILT MASK		Q 3, 10	208
209	50 200 245	250 140 150	S	159			✓	AB. RING, HOOK	1 STONE, 1 IS. COFFIN		Q 3	209
210							✓	AB. RING, EARRING, COIN	BRICKS 24x13x10		Q 3	210
214 A	SEE	PLAN				48E, 91D, 98K	✓		GLASS BOTTLE, WEIGHT 8		P 3	214 A
B, C, D, E, F, G, H							✓		STONE SARCOPHAGUS		P 3	B, C, D, E, F, G, H
OTHERS							✓ 8	AB. 4 EARRINGS, COIN 8	5 IS. COFFINS		N 8	OTHERS
401 A	75 100 200	250 275 80	N	272					LINEN		N 8	401 A
B									LINEN		N 8	B
C									LINEN		N 8	C
D									LINEN		N 8	D
402	75 100 200	250 275 80	N	272					LINEN		N 8	402
403 A	75 100 200	250 275 80	N	271					LINEN		N 8	403 A
B									LINEN		N 8	B
C									LINEN		N 8	C
404	SEE	PLAN					✓		PRINTED WORD COFFIN		Q 2, 4	404
405	100 100 150	200 175 275	S	160					EXCAVATION INCOMPLETE		P 5	405
501		170 223 180	152						6 BONE NEEDLES 8		Q 5	501
502		180 175 85	145						FRAGS GLASS		Q	502
503		180 175 125	150								Q	503

TOMB NUMBER	SHAFT		CHAMBER		OR	AZIMUTH	ALTITUDE	SEX	POTTERY	BEADS	METAL	OTHER OBJECTS	COFFINS, BRICKS, TOMB TYPES	DISTURBED	SEE SECTION	TOMB NUMBER
	N. E. D.	N. E. D.	N. E. D.	N. E. D.								REMARKS				
504			137 200 80			105			45 H1, 87, 16 G1				SEESOI, TILES 25x25x4			504
521			45 80 105			212		?								521
522			20 50 15			221		BF9		✓						522
527			185 182 48			337			41 22 98 H							527
528	00 80 80		300 180 85	E		300		Ø	U61, 101, 130, 208, 2, 79 L3, NE1 MF			14 BOOKS				528
705			102 37 20			58			40 L1							705
720			DESTROYED						89 Ø1	✓						720
729			167 37 40			308		BF9			EARRINGS Ø					729
740			165 46 30			240			886, H, 90 L1, 40 C.			POTS LOOSE				740
745			150 45 80			355		BF0	70 S, 71 E L			POTS LOOSE	BURNT BRICK AT HEAD			745
747			85 40 15			231		BF9	70 V.							747
748			45 170 30			325			70 V.			POTS LOOSE				748
750			42 130 45			343			88 G1							750
752A			40 182 30			325			89 C							752A
B			45 40 70			345										B
753			45 172 30			332		BF9	83 K							753
754			100 180 28			360			70 24, 71 B				Δ GRAVE			754
757			160 30 70			300			91 P,							757
760	40 150 135		35 40 40	E		345		BF12		✓						760
765			SURFACE			354				✓						765
767			SURFACE						89 4.1			POT IN SITU				767
770	40 210 120		25 100 30			340		BF9			RES RING IN LEFT EAR					770
773			SURFACE						488, 70 E, 70 E 3			POT GROUP				773
774			20 80 30			320				✓						774
775			40 150 30			335					RES EARRING					775
784			28 80 100			324		BF9				TE LAMP				784
786			150 35 40			305			89 D		RES BRACELET					786
788			49 60 30						98 E			POT GROUP				788
790			40 100 60			328			48 21, 89 M, 92 B, 99	✓		POT GROUP				790
792			40 40 30			330			83 K			POT OVER HEAD				792
795			140 30 45			310				✓						795
796			40 120 20			330		BF9			RES AT LEFT ELBOW					796
797			40 85 10			324			89 K, 92 J,							797
799			SURFACE						71 E, 92 E, D. DEC SHEED			TE GROUP, TE HORSEMAN Ø				799
803			40 170 40			317			98 D							803
804			30 180 40			321			90 F							804
805			230 30 30						99			TE GROUP				805
807			40 40 30			260			26 M, 14 F, 1, 70 H, 93 D, M, L							807
808			- - 20						89 H			POT ONLY				808
810			40 180 40			340		BF9	90 L			POT AT FEET				810
811			40 180 40			347		BF9	89 J			POT OVER KNEES				811
813 B			70 30 31			75		80 4		✓		READS IN SITU, SNEED OVER HEAD				813 B
816			140 37 40			240			70 M, 88 H, 89 O							816
818			30 70 25			335		LF5			RES RING IN RIGHT EAR					818
819			910 48 40			218		BF9		✓	RES EARRINGS	RES UNDER HEAD				819
823			40 100 25						24 M, 40 D, 99			RES BRACELET, Ø				823
831			HOLE 20			240						RING IN RIGHT EAR	HEAD ONLY, UNDER SHERD			831
838			35 85 35			330		BF9	83 K							838
841			25 75 35			345		BF11		✓	RES RING IN LEFT EAR	SHERD OVER HEAD				841
842									89 P, 99 R, 89 E			POT GROUP				842
843			40 80 20			354		BF9			RING IN LEFT EAR					843
845			HOLE 30						48 21			SKULL ONLY				845
848			40 150 40			323			45 E			POT BURIAL (ROMAN)				848
849			40 150 30			330		BF9	99	✓	RES EARRING					849
850			80 30 25			218		BF9			RES EARRINGS					850
854 B			25 40 15			328		BF9			RES RING IN LEFT EAR		POT BURIAL (ROMAN)			854 B
855			HOLE 28			274		BF9				HEAD UNDER POT				855
856			40 25 20			312		BF9	48 Ø, 83 L	✓	RES EARRING					856
857 A			140 30 30			248						CLOTH ROUND HEAD				857 A
862									88 C, 14 99			POT GROUP				862
880 A			170 35 35			230		BF9		✓						880 A
881 A			20 140 30			330		BF9								881 A
889			30 110 40			320				✓	RES EARRINGS	LINEN				889
890			30 110 20			330			90 C	✓	RES EARRING					890
895			25 75 10			320		BF9		✓		BEADS IN ORDER				895
909			40 165 80			325			48 M, 70 Y, X1, 71 D, 89 G, 89 B, 99 1/2 99 F. Ø	✓						909
910			80 25 70			60		BF9		✓						910
916			30 140 70			350			49, 70 F, L							916
918			35 155 70			160			48, 88 L, 99, 70 24			POT GROUP				918
941			40 145 28			175		BF9	70 P-T.							941
942			40 40 25						83 A, 99 Z, 10, 70 P.			POT GROUP				942
949			40 160 70			325			90 D.			POT GROUP				949
950									92 E, L.			POT GROUP				950
952			30 180 70			330			83 K, 89 G.							952
953			45 160 85			315			70 FL				POT BURIAL (ROMAN)			953
955			45 140 45			320			48 F, 71 B.							955
961			40 40 30			320		BF9		✓						961
963	110 160 240	100 160 80	W			45						BRICK WALLED SHAFT				963



PRELIMINARY REPORT OF EXCAVATIONS AT TELL EL-'AMARNAH 1930-1

By J. D. S. PENDLEBURY

With Plates lxxviii-lxxviii.

Excavations at Tell el-'Amarnah in 1930-31 lasted from the beginning of November until the middle of January. The staff consisted of Mr. H. Waddington as architect, Mr. C. J. Bennett and, thanks to the kindness of the Committee, Miss M. Chubb, assistant secretary, as well as my wife and myself. We were also fortunate in being granted for a short time the services of Mr. Seton Lloyd, now with our late director Dr. Frankfort in Iraq. Visits were paid by Mr. Sherman of the R.A.F., Baghdad, Mr. Phillips of Princeton, U.S.A., and Dr. G. Bagnani of the Italian Mission. In a report of this kind it must be realized that acknowledgements cannot always be made to the originator of a suggestion. It embodies the work of the whole party combined, whom I here thank for their co-operation.

The North Suburb.

Dr. Frankfort had by 1929 cleared all the houses east of West Road. West of that he had cleared the corn merchants' quarter, the line of houses bordering West Road, and a considerable block of houses to the south along the wady. We were therefore faced with an area some 150 metres square which was filled with a most confusing mass of mean slums, often lying at a great depth.

A glance at the general plan (Plate lxxviii) will show how much this area between West Road and the cultivation, bounded on the north by Straight Street, differs from any other part of the town yet excavated. West Road is bordered by estates of a fair size, and so is the wady to the north; within this come smaller but none the less prosperous houses, such as those which run along the south side of Straight Street; but south of Greek Street begins the tangle of slums. This order is incidentally that in which the houses were built. It is clear that for some time after the construction of the larger houses the whole area within was an open common, used mainly for rubbish pits. On the increase in population this waste land was given up, the rubbish pits were filled in and small tenements erected over the whole area. It was by no means rare to find a whole wall collapsed and sunk into a pit, while the owner of T. 35. 18 actually disinfected an old rubbish pit in his grounds, by burning, and then built a corn bin on top of it. That all this fell well within the "Amarnah period" was clear from the pits excavated (1) by the wady to the north; (2) in T. 35. 18; (3) in T. 36. 38. In every case the lowest stratum of pottery was indistinguishable from that on the surface. Any theory therefore which depends upon a settlement, in this part of the city at any rate, earlier than the reign of Akhenaten, falls to the ground. The north part of the city is singularly free also from later intrusions, and it is clear too that the settlement which survived the

general migration at the beginning of Tutankhamūn's reign cannot have lasted for more than a very few years, since objects from "squatters'" walls are likewise indistinguishable from those of the flourishing period of the city.

But to return to the plan. The confused lanes and alleys lying south of Greek Street open out occasionally into squares or run into one or another of the larger east-west streets. It is very noticeable that these east-west streets, *e.g.* those between 52 and 53, and 53 and 20, have no exit eastwards and can only be explained on the assumption of another large arterial road which ran north and south along the river bank. The River Road was evidently as important a thoroughfare as West Road. The North Palace fronts on to it, and it is continued in the North City by the broad road which runs between the Great Wall and the large houses to the east (see below).

In our opinion the river ran in a channel east of its present course. The westernmost houses lie at a great depth and are very nearly on a level with it, being a good two or three metres below the level of the cultivation. In addition it was evidently the fishermen's quarter, judging from the very large number of fish amulets and fish hooks discovered here. It may be objected that this leaves little room for the cultivation, but it seems more probable that the suburb actually overlooked the river and that its fields were on the opposite bank.

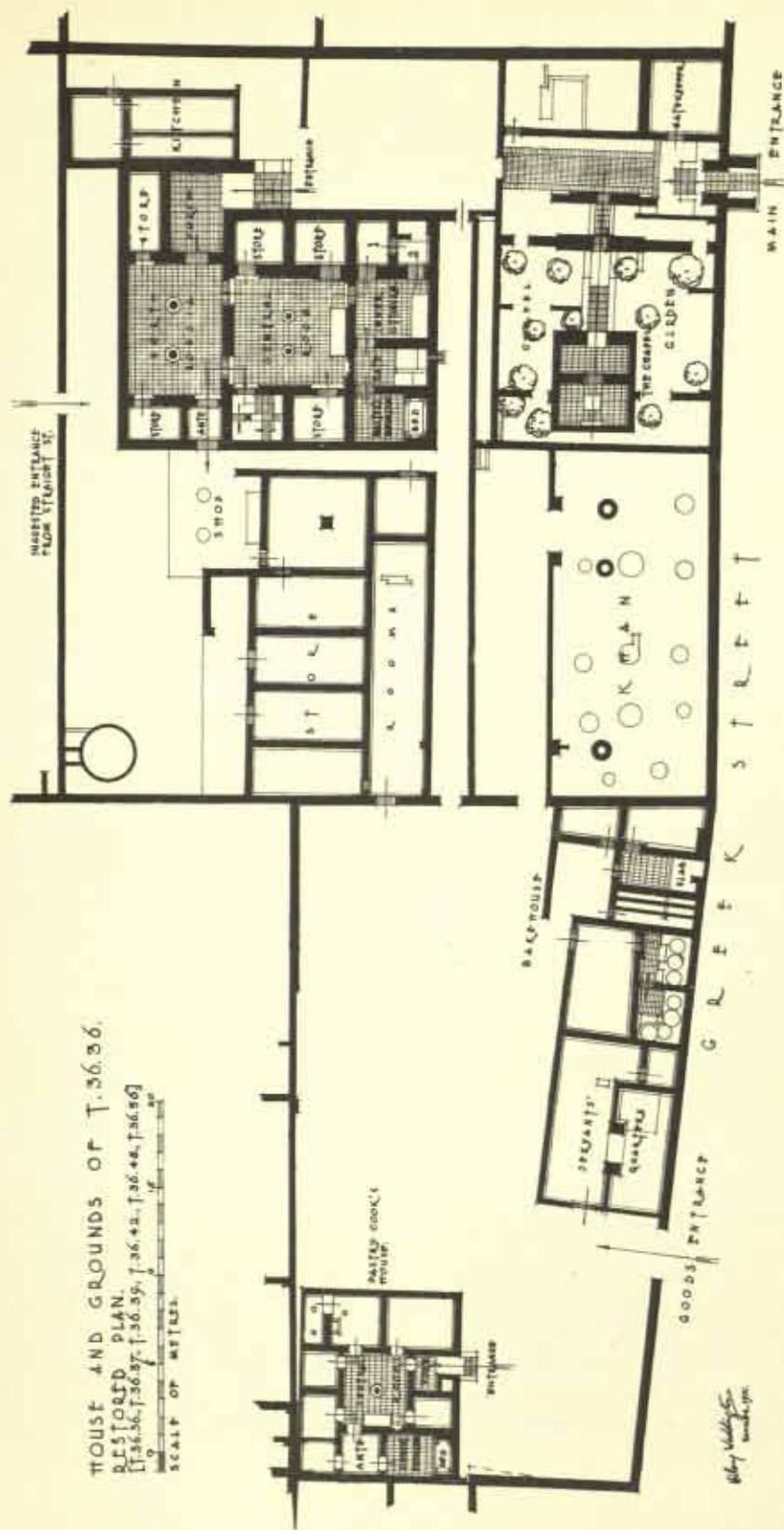
The most interesting estate excavated was that of T. 36. 36, which included T. 36. 37, 39, 42, 45, 56 lying between Straight Street and Greek Street (Pl. lxix). Its main entrance was through an elaborate gate off Greek Street, whence a path led direct up to the front door, a curtain wall being built in from the east wall of the estate a little way beyond, to shut off all view of the kitchens. To the left of the path lay the chapel, remarkable in two respects, first in that it was entered from the east¹, between small pylons; secondly in that the grove of trees surrounding it was irregularly planted instead of being arranged in the decent orderly rows which are typical of Egypt.

The house itself calls for little notice apart from the fact that the inner sitting-room has its couch in the corner, an arrangement unique for this room and rare for the central room. The bathroom has no fewer than eleven layers of thick white plaster. The stairs seem to have had on one side, instead of a blank wall, a brick pier supporting the upper flight² (see Pl. lxx, figs. 2 and 4).

West of the house lay what looks like a shop, with magazines and a terrace. This was approached either from Straight Street by a path east of T. 35. 17 or direct by a private door from the North Loggia of the house. To the south, separated from all this by a narrow lane, is a "khan," the awning or light roof above which was supported on poles, resting on mud bases at irregular intervals, with here and there mangers (see Pl. lxx, fig. 3). In the north-east corner was a descent into a very long brick-lined vault which ran nearly the whole length of the chapel garden. The narrow lane above mentioned leads out eventually into an open court along the south side of which runs a bakery, with a plaster table to knead the bread, long narrow divisions for drying, and ovens for baking. It is an arrangement still common in some villages. In the north-west corner of the court lies a small house, presumably that of the steward or perhaps of the chief cook. What we have here in fact is the estate of a prosperous baker and confectioner.

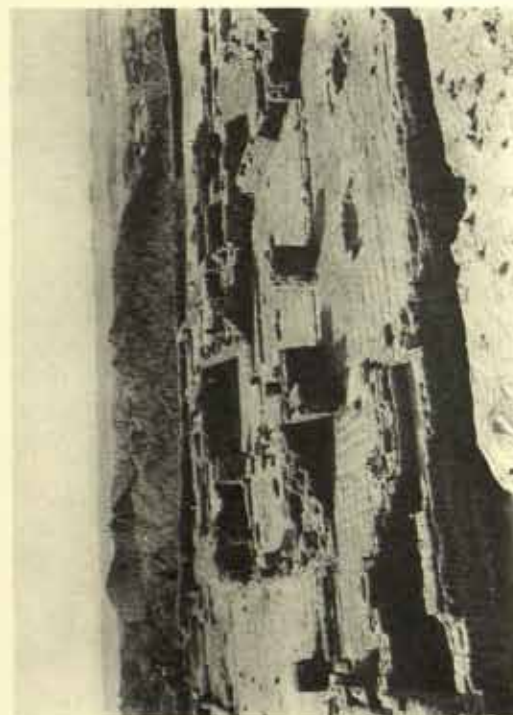
¹ But the orientation of these chapels is quite without significance; T. 35. 21 also faces west. U. 25. 4 faces north.

² Mr. Lloyd thinks it is chance; but while a straight joint is common for two courses it seems unique for three, especially when carried right through to the other side.



Tell el-'Amarnah.

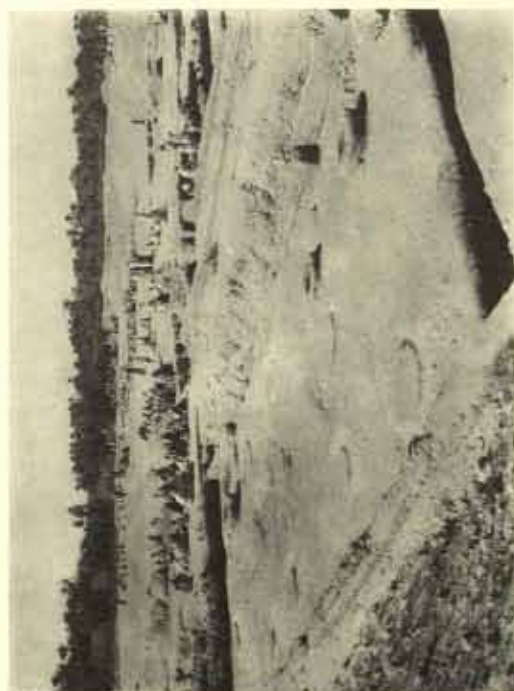
Restored plan of House T. 36.36 and its grounds.



1



2



3



4

- Tell el-Amarnah, House T. 36.36 & estate.
1. General view, looking south.
 2. Bathroom, showing plastering.
 3. "Khan," from south-east.
 4. Stairs, with pier supporting upper flight.





1



2



3



4



5



6

Tell el-'Amarnah.

1. Stone vase with central division. *Scale c. $\frac{1}{2}$.*
2. Stone latrine-seat. *Scale c. $\frac{1}{4}$.*
3. Pottery hippopotamus. *Scale c. $\frac{1}{2}$.*
4. Leg of pottery tripod in the form of a human face. *Scale c. $\frac{1}{2}$.*
5. Wooden box-lid, with incised design. *Scale $\frac{1}{2}$.*
6. Bronze objects. *Scale $\frac{1}{2}$.*

The objects found here were remarkable. Two small bronze weights, one conical (8.3 grammes), one beautifully modelled in the shape of a dog's head (24.10 grammes); a fine bronze dagger, leaf-shaped with a wooden handle; a little stele with the Aten disk and rays; a pottery hippopotamus (smiling) (Pl. lxxi, fig. 3). More important than these however were a carnelian ring-bezel engraved with the figure of the king, squatting with his hand up to his chin; the first complete Mycenaean vase ever found on the site (Late Mycenaean A (L.H. IIIa), a pilgrim bottle of Rhodian fabric) and an extraordinary face in pottery, once the leg of a tripod (Pl. lxxi, fig. 4). This face is in Egyptian clay but it is obviously not of Egyptian workmanship. Both at first sight and on closer examination it bears an amazing resemblance to the most well known of the gold masks from the Shaft Graves of Mycenae. It must be remembered that it is a good two centuries or more later than the masks, but I am certain it was made in that tradition. Even the prominent lips are common to both, though in this caricature they are very much exaggerated.

What all this is leading up to is the suggestion that this house belonged to a Mycenaean merchant, the Greek grocer of his day. To take the points in order, the couch in his private room is in the corner (*cf.* the Room of the Plaster Couch at Knossos). In the few years during which this part of the city was in existence he plastered his bathroom no less than eleven times (this passion for replastering is common in the Aegean; *cf.* particularly the hearth at Mycenae). The upper flight of his stairs was supported by a pier (in the Aegean it would more usually be a column¹). The trees round his chapel were scattered and irregularly planted, just like the groves we see in frescoes and on rings from the Aegean. That extraordinary mask was made for him. Of course this is no more than a suggestion, but it must always be remembered that such foreign merchants must have resided in the city and that in view of the new and close connexions between Egypt and Mainland Greece there is no inherent improbability in this attribution².

With regard to the possibility that this estate belonged to an Aegean merchant, it may be a suitable point to make a slight digression on the subject of the Mycenaean pottery found at Tell el-'Amarnah. Several attempts have been made to prove that the Mycenaean pottery is not contemporary, on the grounds that no complete vase has yet been discovered, and that apparently some wandering maniac went about the site later and scattered broadcast a number of sherds which he happened to have about him. This view cannot be too strongly condemned. It is indeed curious that until this year nothing approaching an unbroken vase has been discovered, but it must be remembered that, as far as I know, in not one single case has every inch of sand been shifted from a house and its grounds; and knowing, as we do, how quite large and useless fragments of other objects have disappeared, it seems absurd to claim that because all the pieces of a vase are not found therefore that vase must belong to a different period. In addition every single sherd this season was in a floor deposit, and no single sherd which I have been able to trace has been found in anything else³. Likewise every single Mycenaean sherd is of the same period, *viz.* good Late Mycenaean A (Late Helladic IIIa), usually of some fabric allied to the Rhodian or Cypriote, but very often of obviously Argolic clay.

¹ *Cf.*, however, the stairs leading down to the South-East House at Knossos.

² We dare hardly suggest that the contents of the Mycenaean "pilgrim bottle," which turn out to be resinous, were imported to give a truly "Mainland" flavour to the local wine. More probably the resin was to be used in some religious purification (*cf.* Evans, *Shaft Graves and Beehive Tombs of Mycenae*, 3 and references).

³ I naturally except rubbish heaps.

The only Cretan sherd ever found on the site (in 1929) was a Late Minoan II sherd surviving from the previous period. This fits in well with all the available evidence which points to a practically complete break between Egypt and Crete in the middle of the reign of Amenophis III and a corresponding wave of intercourse between Egypt and the rest of the Aegean beginning exactly at this point.

Two sherds this season seem to extend the range of Egypt's foreign relations. Both were of a greenish clay decorated with purplish paint, the fabric and paint being typical of Late Macedonian ware; one, however, though a typical Macedonian wishbone handle, is decorated with thin vertical lines in a way which is characteristic of the handles of white Cypriote bowls, though corresponding with these neither in fabric nor in paint. In any case it is to be hoped that the last has been heard of the "heresy" that the Mycenaean sherds are not contemporary with the 'Amarnah epoch.

The other houses require very little description. They conform mainly to the normal type of small house, *viz.* a central room with a number of other rooms grouped round it.

Some of the finds, however, merit notice. Most beautiful of all was the little princess's head in painted limestone from T. 36. 68. It is a most fascinating piece of sculpture and I think we are, provisionally, justified in identifying it as Ankhsepenpaaten. She alone of the princesses is sometimes shown without an elongated skull; in her portrait on the back of Tutankhamun's chair she is not only shown in just such a wig but also displays the same rather broad face, with a full mouth and firm chin. That she is of the royal family at any rate no one will deny (Pl. lxxii, figs. 3 and 4).

More surprising perhaps was the "crock of gold" which lay innocently in a corner of the courtyard of T. 36. 63. It contained 23 ingots of gold, 2 ingots of silver, 38 silver rings, 2 silver ear-rings and a number of fragments of silver cups, all badly bent and broken¹. Lastly there was a small silver figure about 7 cm. high with a gold cap, a ring from which to hang him projecting from his back. He is clearly a Hittite god². The condition in which this hoard was found, the silver cups being crushed and broken, the gold ingots but recently melted down, points to its being the spoils of some thief who had perhaps even robbed the Hall of Foreign Tribute which lies less than a mile to the south (Pl. lxxiii).

Another find, which gives us the hope that perhaps we have at last moved out of the white-ant area, is a wooden box lid, with the figure of an antelope or goat craning up to a very conventional tree. The design is incised and filled with a white chalky substance. The lid belongs to the great series of semi-Aegean wooden lids, none of which can with certainty be dated earlier (Pl. lxxi, fig. 5).

From the chapel of T. 35. 20 came fragments of what must have been a very fine relief, showing the king with a censer making an offering.

Mr. Lloyd adds some remarks on one of the architectural points at the end of this

¹ The weights of the ingots are as follows: Gold: 286.53, 276.51, 283.70, 273.60, 280.72, 246.80, 132.90, 123.35, 265.89, 200.74, 162.22, 80.25, 193.70, 99.65, 90.40, 70.35, 82.95, 104.53, 83.96, 34.60, 80.98, 54.36, 66.55. Silver: 479.20, 287.95. Most of the gold ingots had been run into rough sand moulds. It is therefore unlikely that they should conform to a known weight system. The nearest approach is the group which centres about 270 gr., *i.e.* c. 3 *deben*, but this is a most improbable weight. The rings do not seem to belong to any weight system. More details, including that of the analyses made by Mr. Lucas, will be given in *City of Akhenaten*, II.

² Mr. B. Gunn tells me that this is confirmed by Professor Rostovtzeff and also by the analysis of the silver, which, like all Hittite silver, contains 20% gold.



1



2



3



4



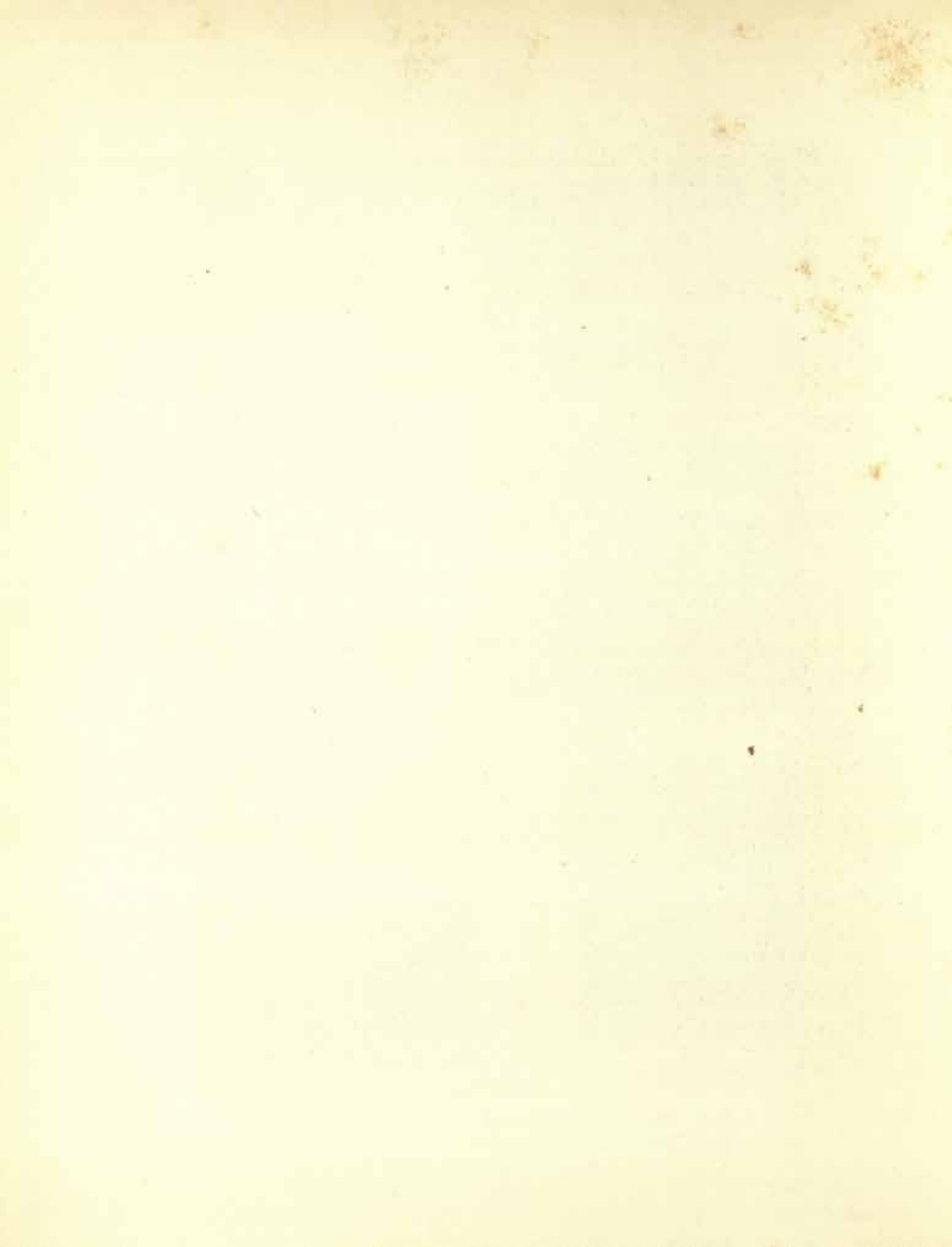
5

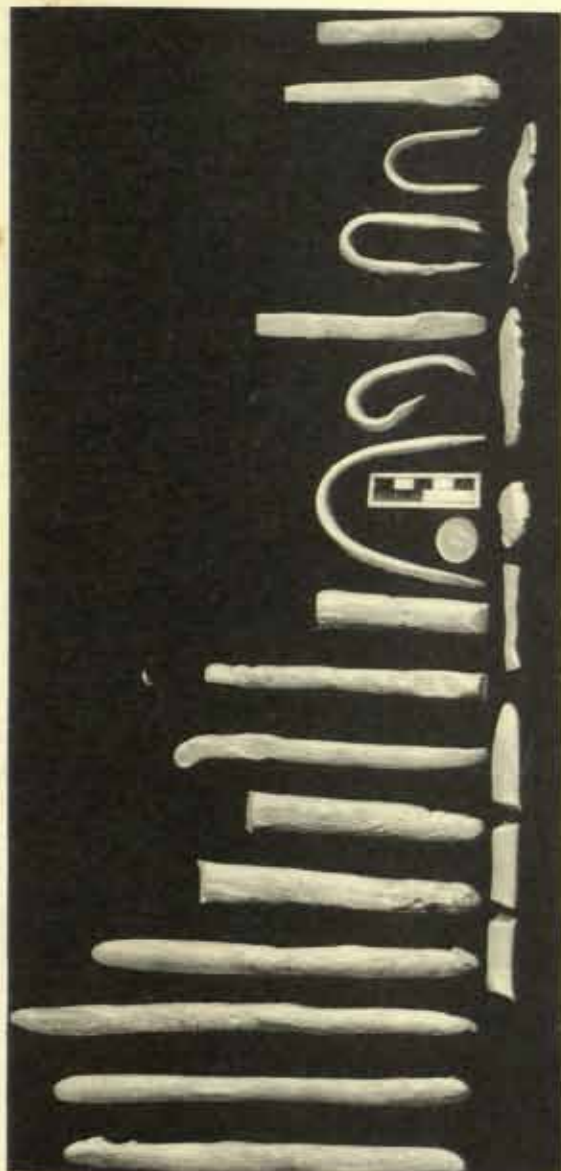


6

Tell el-'Amarnah.

- 1 & 2. Reproductions of painted plaster from the Wall. *Scale c. $\frac{1}{2}$.*
 3 & 4. Head in painted limestone. *Scale of 4, c. $\frac{1}{2}$.*
 5 & 6. Glazed limestone brick in two shades of blue. *Scale c. $\frac{1}{2}$.*





1



2



3



4

Tell el-Amarnah, House T, 36.63.

1. Gold ingots, with sovereign and inch-cm. scale.
2. Silver figure, with gold cap, of a Hittite god. *Scale c. 1.*
3. Silver found with the gold. *Scale 1.*
4. The opened crock, showing gold, silver and figure.

paper, but there are one or two things which may conveniently be mentioned here. The ratio of the diameter of the column at the bottom to that of its stone base is invariably rather less than half, the care with which this was worked out being evident from the two engraved lines passing through the centre of the base, which always show the diameter of the column itself even when the latter has not left its mark.

Our knowledge of the varieties of the painted decoration of wooden beams has been enlarged. It appears that the rafters did not always carry the same block pattern at the bottom as on the sides; in most cases this year a very simple chequer pattern in black and white or black and yellow between equally simple borders formed the bottom; the sides would seem to have splayed out at about 120° and to have been decorated with the block pattern already familiar. In one case however (T. 35. 17, North Loggia) the decoration was extended to a small band on the ceiling itself bordering the rafters.




Another interesting point is the frequency with which a two-brick wall is constructed of one and a half bricks by the simple means of leaving spaces running through the wall. This was very clear in T. 36. 36, where some of the walls gave the appearance of being honeycombed. Whether it was done for motives of economy, or whether the builder imagined that it was a cooler construction, it is impossible to tell.

Lastly, mention must be made of a very fine limestone latrine seat from T. 35. 22, which gives us a yet higher appreciation of the sanitary arrangements of the period (see Pl. lxxi, fig. 2).

The Wady Houses.

These houses lie some two hundred metres to the north of the suburb and form a conspicuous landmark. Although actually in the bed of the wady they have been very little affected by the periodic torrents and are well preserved to a good height. Three large houses were cleared, but this part of the city seems to have extended some little way farther north at a higher level and it is hoped to complete the excavation next season.

Most important was the house of Hatiay (T. 34. 1, see Pl. lxxiv), overseer of works to the king. His tomb was already known at Thebes, and an exquisite ushabti figure which may be his is in the Cairo Museum.

The house itself is not exceptionally large, though it offers a number of unique features. In plan it conforms to that of others, but it is exceptional in the amount of stonework used for the door jambs and thresholds. Every door indeed seems to have been framed in limestone, painted red, while most striking of all was the magnificent carved and painted lintel which was found in the North Loggia (Pl. lxxv, figs. 1 and 2), where it had fallen from above the door leading into the central room. As can be seen from the illustration, the carving of the inscription is careless to a degree; several of the signs have been reversed, notably the  in the name, while, by an amusing error, he is said to bring pleasure to the king's "face,"  for . The figures, however, are better done and the painting of the royal titles is exquisite. It will be noticed that the name of the king has been savagely erased while the lintel was still in position¹, while those of the queen and the Aten are untouched. The door into the master's bedroom was found in a condition complete enough to admit of its re-erection. It was capable of being barred from within, while a hole outside held the pin round which a string was wound to seal

¹ It was found lying face downwards, having, as it were, folded back on itself, for the top of the cornice was lying face upwards beneath it.

it (Pl. lxxv, fig. 3). These doors seem to have been exceptionally high, if we may judge from the front door of M. 50. 13, which was only 1.48 m.¹

Here the door into the central room was at least 2 metres, another jamb found also in the North Loggia 1.80 m., that into the master's bedroom 1.82 m. The lavatory door (1.54 m.) was the lowest.

Mr. Lloyd has suggested, from the prevalence of stonework, that Hatiay may have been entrusted with the removal of wood and stonework from the other houses on the general desertion of the city, and that it is for this reason that his own was spared.

Another feature of the house is the fact that there are two front doors. One lies to the west, where a fragment of a door jamb, inscribed *hṯp dī nīstet* and the beginning of royal names, was found. This was evidently the original entrance, approached direct from the gate into the grounds; later, however, presumably on his advancement to further honours, Hatiay added a more magnificent porch at the north, and marked the roundabout path to this by building a wall from the estate entrance right up to the west wall of the house, thus shutting off, except for a small door, all approach by the old entrance. The visitor therefore was now led up straight to the house, where he turned left and then right, round the north-west corner. He then turned completely round to ascend the stairs of the new porch. This porch was added direct on to the north wall of the house, with no attempt at bonding. The house wall was cut through and a threshold of stone slipped in. An additional advantage of this new approach was that the visitor could not fail to see and be impressed by the chapel. This chapel is peculiar in plan in that it has no ramp ascending to it. It has the usual central pier for the support of a stele or statue, while to the east a short mud-plastered path, with a pair of trees on either side, leads to two altars. The larger of these was plastered red all over, with the exception of the back, which was white. The smaller was painted white and blue, its white steps striped with blue, yellow and red (Pl. lxxv, fig. 4).

This new entrance system had sadly narrowed down the available space, and as a result the chariot house and stable had to be built outside the entrance to the grounds.

To return to the house itself. The excavation of the stairs provided excellent evidence of the way in which the second flight was supported on sloping poles of wood, presumably with cross pieces laid on them, which in their turn supported the brick treads.

Several interesting discoveries were made in the domestic quarters. First came a column base, fallen from the upper storey and found about 30 cm. above the floor of the inner sitting-room; with it were found three circular pads of mud, which Mr. Lloyd suggests may have been placed between the wooden column and the stone base. From the inner sitting-room opened a door which led south into a small structure abutting on to the house and forming a complete dwelling in itself with a single-columned main room and two smaller rooms to the east.

Of painted decoration nothing but some pink plastered bricks at the west entrance and some small fragments of pink beams in the North Loggia was found.

The grounds were not very large; cornbins and ovens and a servants' colonnade in a court to the east; two more cornbins to the south and a few magazines, while the north-west corner of the estate was filled with the dwellings of servants and with stores. At the north end the estate wall was found fallen in its entirety. It proved to be 3.05 m. high, which we may take as the normal height.

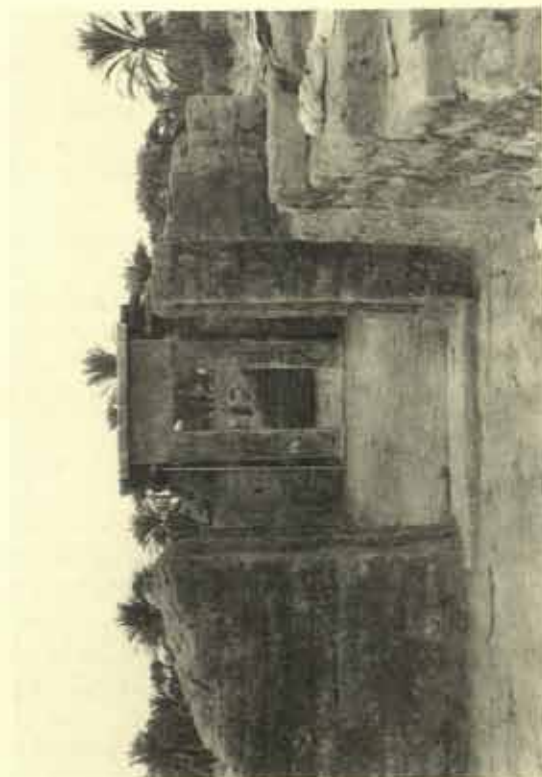
¹ *City of Akhenaten*, I, 18 (Pl. viii, fig. 3).



1



2



3



4

Tell el-'Amarnah, House T. 34.1.

1. Lintel between N. Loggia and Central Room, as found.
2. The same lintel, restored.
3. Doorway leading from corridor to Master's Room.
4. Painted altars in the chapel.

As is usual with the larger houses, the finds were few. A piece of bronze covered with gold leaf, perhaps part of a chair; a pedestalled bowl in soft brown stone with a division down the middle (Pl. lxxi, fig. 1); a number of uraeus-heads in dark blue faience, presumably from some interior decorative frieze; a wooden comb and, from below the floor of the inner sitting-room together with fragments of bronze and silver, a fragment of gold jewellery in the form of an inscription, and three small bronze adze heads (Pl. lxxi, fig. 6, for one of these and other bronzes). From the "squatters'" wall in the corner of the north porch came a small painted stele showing the Ape of Thoth with horns and disk.

To the east of Hatiay's house rose a massive structure projecting some two or more metres above its tall mound. This, when cleared, proved to be a Roman block-house, consisting of a number of square rooms grouped round a long central room with various outbuildings to the south-east. The whole was overlying an earlier house, or rather, earlier houses, whose thin walls run in confusion below the later building. Some assistance was obtained in disentangling one from the other when it was realized that the Roman walls were on the whole considerably thicker. But these late foundations had been driven well down to virgin soil and it was by pure chance that the exquisite limestone "brick" decorated in dark blue and light blue glaze (Pl. lxxii, figs. 5 and 6) and the faience knob of a ceremonial stick (possibly Hatiay's) remained to reward us. Hence too came a fragment of an alabaster vase, inscribed with the name of Amenophis III. The early houses themselves seem too mean to have boasted a fine window frame in red painted limestone, which may probably be assigned to Hatiay's house, together with the granite supports for the legs of a bed.

The Roman deposit was wretchedly meagre; one or two coarse clay figurines; a coin or two; a clumsy stone ring; and the Greek alphabet painted on a piece of flint, once forwards and once backwards. The whole area, however, was a mass of burials, mostly of children. One could be dated to Justinian II from a coin, and one, which was quickly covered up, had inscribed on the coffin "Tate's Sugar." The rest had neither pottery nor ornament to distinguish them. They lay supine in shallow pits. A little farther west, however, under one of the walls of T. 34. 2 there came to light a row of four men lying on their backs, with their skulls broken and the wall built over their waists.

Farther to the north-west, just under the north bank of the wady in fact, lay another large, but very compact house, S. 33. 1. The grounds were very small and lay only to the north. The entrance was at the south end and the front door was framed in brick jambs resting on stone bases. The West Loggia was exceptionally large and opened directly into the central room by a single door, flanked by two niches. From the presence of a dais and a hearth in the North Loggia, however, it was clear that this and not the central room was the chief living-room of the house. The central room itself was remarkable for the number of party walls erected by squatters at a later period. This gives some colour to the suggestion of Mr. Lloyd that, after a certain period, the wooden columns were deliberately sent for, to be floated up to Thebes, wood suitable for columns being valuable¹. In this case the relations of the guard perhaps got permission to replace the columns by walls and so to support the roof and keep the house in a habitable condition. These walls were often constructed of bricks brought from the old houses of the squatters, which accounts for the total absence of so many walls in the smaller houses. Further evidence was obtained in the inner sitting-room, where the

¹ Mr. Waddington notes that the wooden doors also seem to have been removed, since the socket in several of the thresholds had been cut into to allow the hinge to be slipped out.

wooden column had been replaced by a square brick pier built on the stone base. South of the central room was a small service-room with a hatch in one wall. The domestic quarters were, unusually, to the east, the master's bedroom being in the south-east corner, approached alternately through two antechambers, and having in the middle of the dais for the bed a curious brick pier, as if the bed had given way and had to be supported. The grounds to the north lie within a very heavy containing wall, specially strengthened, perhaps, to terrace up the bank of the wady. There are two pairs of cornbins here but they are built only one brick thick, so that the vaulting must have been completed in some lighter material. The finds here too were woefully few; some bronzes, including a very fine bronze saw, with 𐤏 engraved near the handle; a coarse limestone figure of a woman, purposely finished off below the shins.

As I have said, north of the wady this part of the city continues. To the west there are no traces, but to the east, bordering in fact on a continuation of East Road, there are several medium and large-sized estates. The fact that those houses excavated this year lie in the bed of the wady and yet are comparatively unharmed seems to indicate that the wady from that period to the present day had its channel to the south, that is, along the north border of the north suburb, where in times of spate it still runs.

The North City.

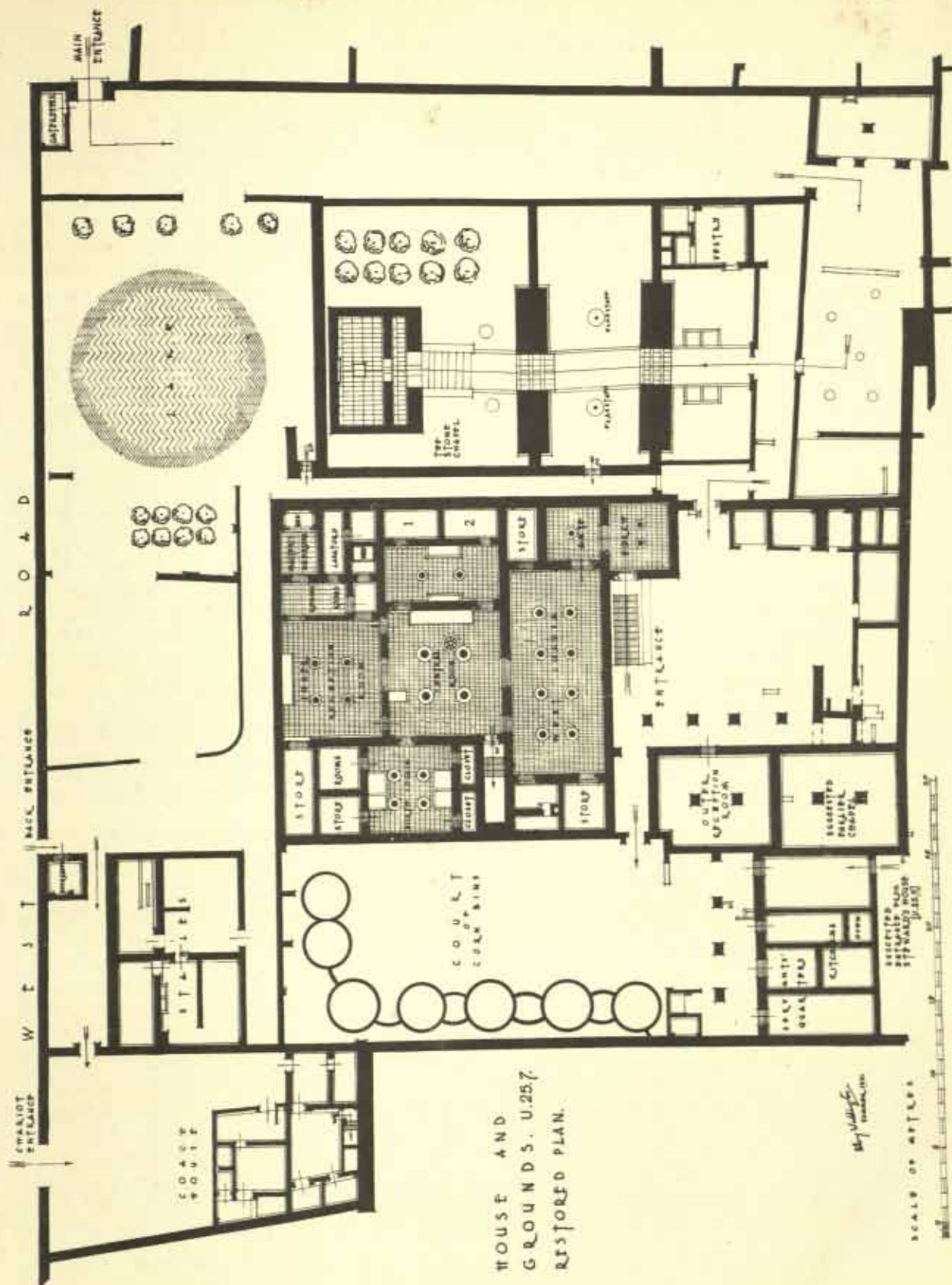
In view of the very great size of the North Excavation House and of the surrounding mounds it was obviously best to tackle this end of the city before returning to the south. As could be seen when looking down from the high desert, the large estates mainly bordered the River Road above mentioned which ran west of them, though those built out towards the south were entered from the east. The smaller houses occupied the spaces between the little wadys which run down here in all directions and evidently took the place of streets.

After the excavation of some small houses to the east and of some grounds belonging probably to the Excavation House, we attacked a big mound south-east of the latter. This house (U. 25. 7) with its estate proved to be one of the biggest and finest in the whole of El-'Amarnah (Pl. lxxvi).

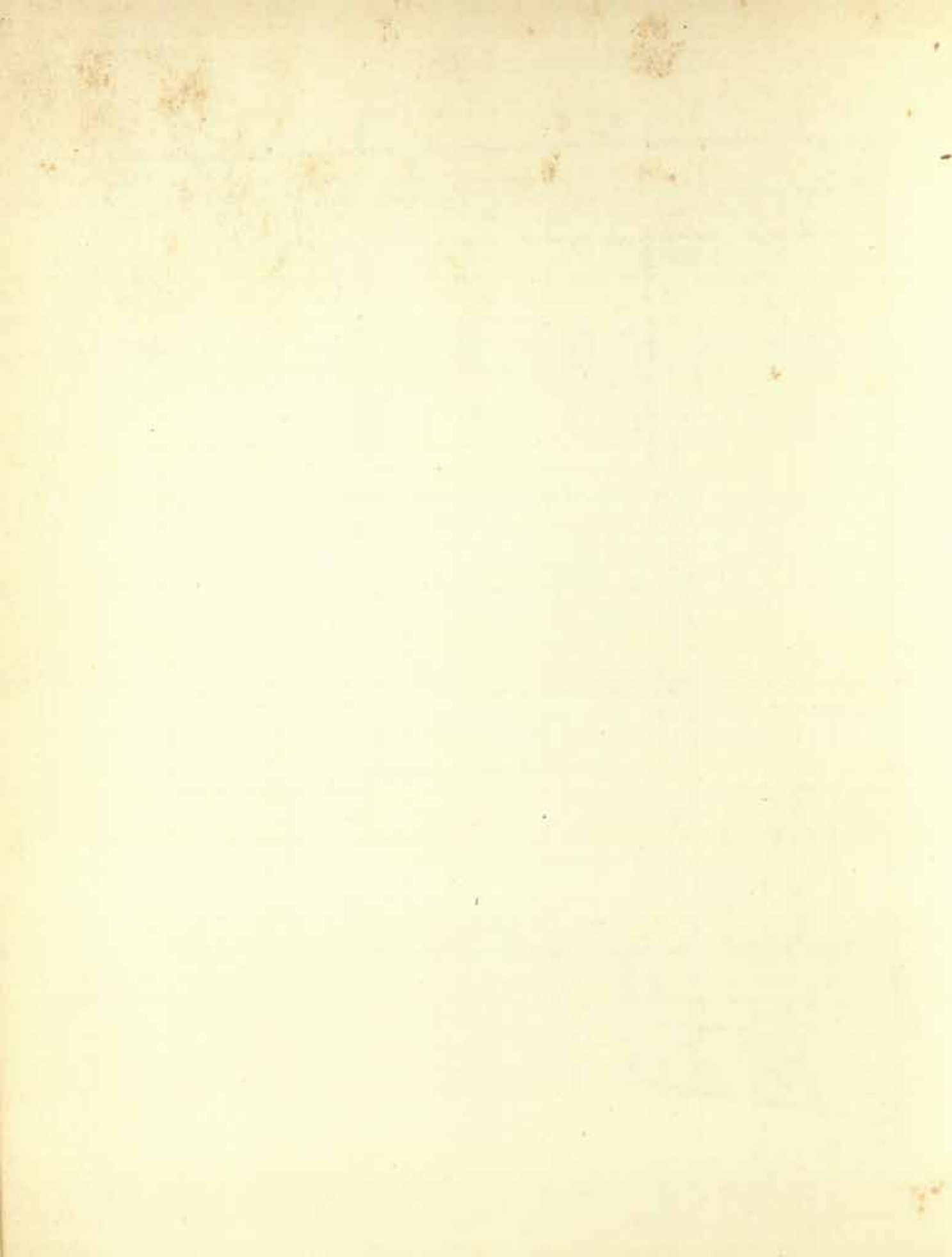
To take the house first. As can be seen from the plan, it was well raised up and approached by an unusually long flight of steps. The antechamber and vestibule had each a column, while the West Loggia had no fewer than eight. Evidence of an upper storey was obtained in the shape of several small column bases of limestone painted a bright orange. The large central room had a secondary brick dais extending lengthways into the room from the east wall. The North Loggia had the peculiar feature of two small troughs, whitewashed and only half a brick high, themselves divided into two, projecting from the side walls and leaving free only the centre of the room and access to the rooms on either side (Pl. lxxvii, fig. 3).

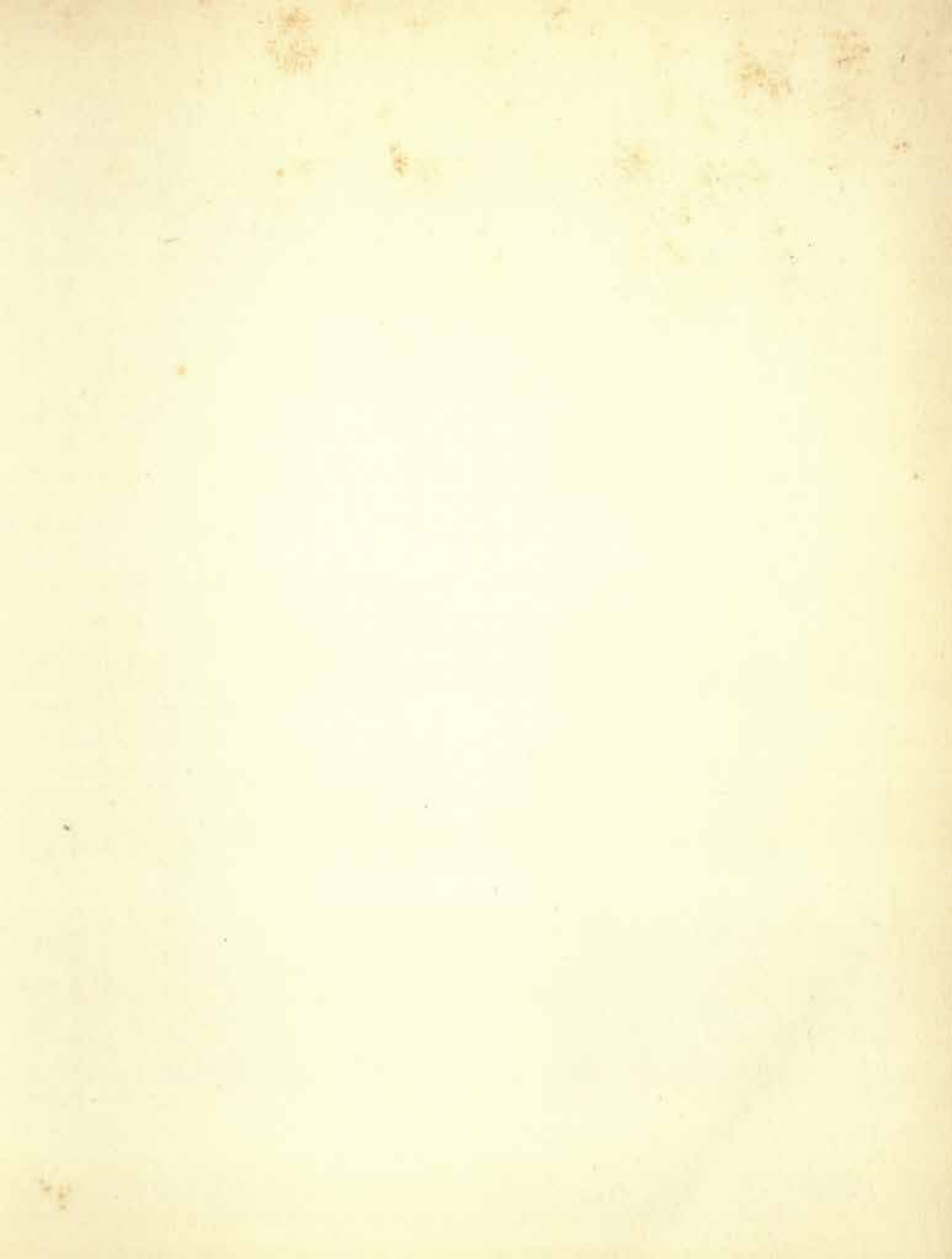
Another feature which U. 25. 7 shares with the North Excavation House, and as far as I know with no other, is a two-columned room to the south of the central apartment with two small rooms opening off beyond it southwards. This room seems to have been provided with deep brick chests projecting from the north and south walls.

The domestic quarters were unique. The inner sitting-room is a very large room with four columns. It gave the impression that the owner had intended the guest to have a clear view right through from the West Loggia, which must have been most



Tell el-'Amarnah. House U. 25.7.







2



1



4



3

Tell el-'Amarnah, House U. 25.7.

1. Entrance, seen from passage to servants' quarters.
2. View from West Loggia through Central Room.
3. North Loggia.
4. Chapel from east.

impressive (Pl. lxxvii, fig. 2). The bedroom opens to the south; west of it is a small toilet room and a room which at first sight looked like a smaller bedroom with a very tiny niche but which must have been a dressing-room with a wardrobe.

The estate was no less magnificent than the house. The entrance was through a big gate in the south-east corner. Immediately in front of this was the garden, surrounding a large lake. The formal approach to the house turned due west and led along the south side of the great chapel, but a more private entrance was obtained by walking through the garden behind the chapel and going along the narrow passage between the chapel and the house.

The chapel itself is the finest in the whole town (Pl. lxxvii, fig. 4). It was approached from the west along a path to the south of which evidently lay a vestry, between two massive brick pylons into an open paved court. Here were found the places where two large trees had stood. From this court, also, opened a private entrance into the passage above mentioned between the chapel and the house. Then came two more massive pylons and a second court, with mud bases for flag-staffs. Here stood the chapel; nothing remains but the plan, for alone of the chapels in El-'Amarnah it was built of stone. Blocks lay scattered about, while in a house to the west (U. 25. 9), which may have formed part of the estate, were found fragments of a brightly painted cornice and columns sculptured with the royal names. The court in front of the house itself seems to have been made smaller by the erection of offices along the south and west sides some time after the house was built, for they lie over part of what seems to have been a smaller chapel in the north-west corner. An outdoor reception-pavilion lay to the north, fronted by a row of posts to support an awning. The passage between this and the house led to the service quarters and to the granary court. In the north-east corner of the estate lay the stables, while built out north of this was the coach house with a loft.

To judge from the size and magnificence of the house, the owner must have been a very prominent man. But the entire lack of privacy in the domestic arrangements, the inner sitting-room being merely a prolongation of the central room, and the fact that there was only one bedroom, seem to indicate that this was an official residence. When we consider that in his grounds was the only stone chapel in El-'Amarnah, a chapel which should more strictly be called a temple, and that he seems to have had the ordering of a considerable revenue (for the house to the west, U. 25. 9, with its granary court, seems to have belonged to him), we are, I think, justified in regarding this as the official residence of the High Priest in the North City¹.

South of this great house and sharing its estate wall lay U. 25. 8. That we regained the plan of this must be put entirely to the credit of the workmen and particularly of a young reis, Maḥmūd Umbârak. Of the house itself not one brick remained. At first it looked as though we were tracing flower beds, but thanks to careful scraping on the part of the "company," not by any means entirely composed of trained men, the slight darkening of the sand where bricks had once been revealed the walls and even the thresholds of doors. The plan itself showed nothing new, but our delight in the care and skill of the men repaid all the trouble.

South of this again lay a building U. 25. 1, which really defies description. It consists of a series of columned rooms, some of them at any rate half open, for the stumps of

¹ It is in fact an exact parallel to the official residence of Paneḥsy by the Great Temple. *Journal*, XIII 211-213.

plants, neatly arranged, were found in several places. It really looks like nothing so much as a fashionable restaurant or a club. And why should it not be? From here came a fragment of a limestone relief, much damaged, showing the top of the head and the back of a figure in the act of bowing low.

The Wall (Plate lxxviii).

Instead of continuing with the houses, we spent the last fortnight in concentrating our efforts on the great wall which runs parallel with the river some forty metres west of the Excavation House. We expected to find an interesting example of Eighteenth Dynasty fortification; the results were very different.

The excavation began at the south end, where it runs into the cultivation. It was soon realized that the wall was in reality double, with a broad clear space in the middle (Pl. lxxviii, fig. 4). On either side there soon appeared steps ascending to a tower, the interior filled with rubble, on the top of which came to light several fine fragments of painted plaster. North of this tower lies the depression which is regularly used as a path between the house and the river. Before long it became obvious that it was a gate, and moreover that it was filled with fallen wall-paintings. Time being so short, it was decided to stop work, since this season we could not hope to finish the elaborate work of extracting thin films of paint, often lying on their faces and in a desperately fragile condition. A few pieces were secured by pouring wet plaster on the back, leaving only so much mud backing as would prevent the plaster from coming through to the face. Other pieces were padded with cotton wool and lifted without plaster. These fragments have been left sealed in air-tight cases in the house until they can be properly treated and rendered safe for travel.

For the most part they consisted of friezes composed of flowers and fruit. At intervals, however, or perhaps on another level, occurred festoons and chequers. But the two gems, promises of future discoveries, were first the head of a pigeon and secondly the forearm and waist of a man wearing an elaborately embroidered kilt (Pls. lxxviii, fig. 3, lxxii, figs. 1 and 2). The paint is marvellously fresh, contrasting with the weathered appearance of the fragments from the tower; and if, as we shall see reason to believe, this gate was in the nature of a state entrance, we may hope next season for some very interesting results, perhaps historical as well as artistic.

This great gate was flanked on either side by large false doors of stone (Pl. lxxviii, figs. 1 and 2). Above these were two uraeus cornices, the smaller of which supported statues of the royal family, for above the uraei appear traces of feet, and the upper part of a much mutilated female figure was found in front of the northern false gate. North of the gate proper was another tower, and beyond this the wall was again divided with traces of steps as to the south. The excavation of the interior was postponed, but the exterior face was traced for several hundred metres northwards to a point where it seems to have been swept away by a wady.

Towards the northern end, however, and running into the west face of the wall was a row of five niches; north and south of these were cross walls, and by one of these appeared several fragments of door jambs inscribed with the names of Akhenaten (defaced) and Nefertiti, and most important of all, the end of a lintel with the inscription "My father the Aten." That, surely, is a phrase that could only be used in a royal building. Is it possible that we have here another palace? It is near enough to the



1



2



3



4

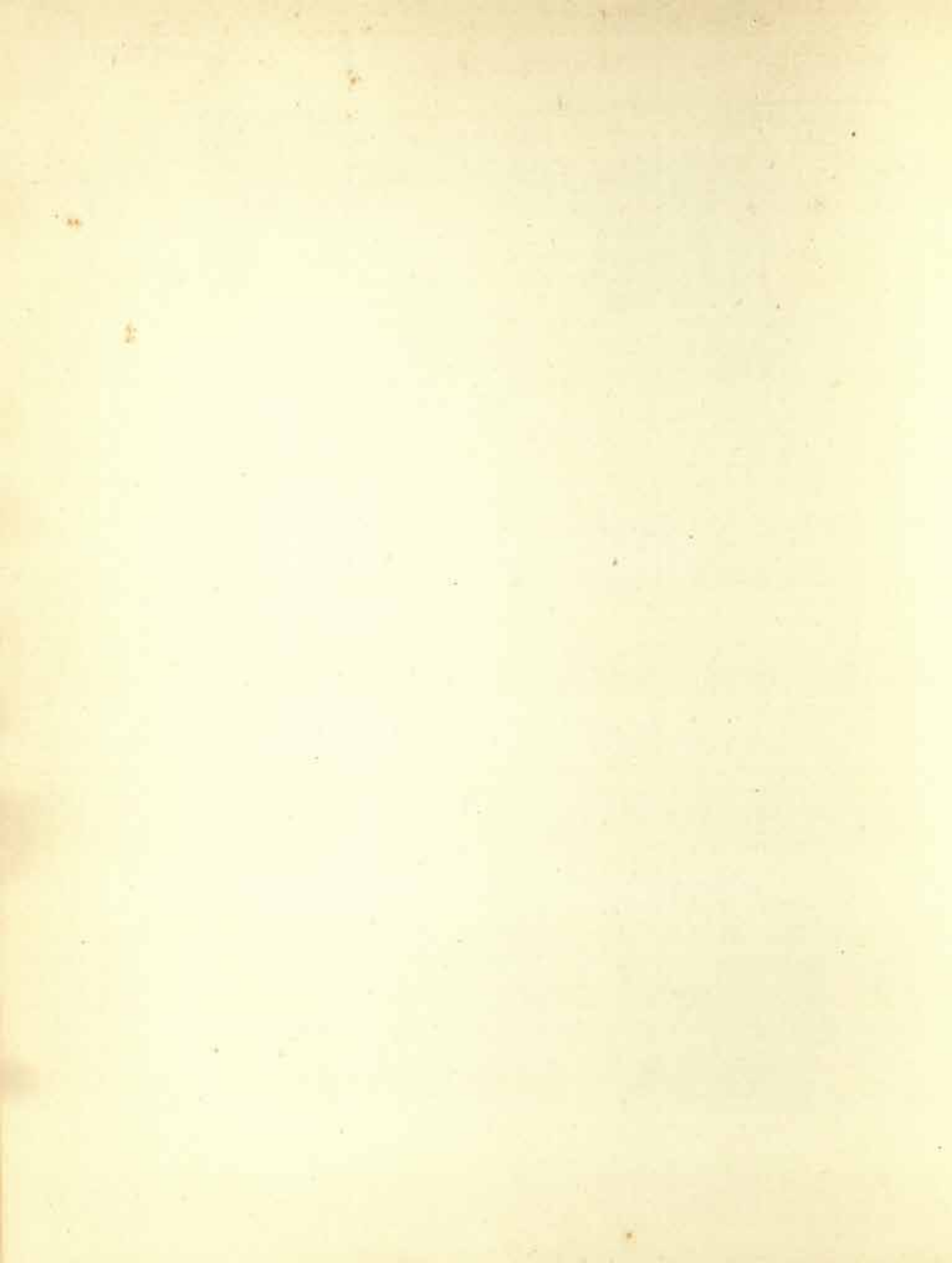
Tell el-Amarnah, the Wall.

1. False door to north of central gate.

2. Central gate and false doors, looking west.

3. Painted plaster *in situ*.

4. Interior of wall, south of gateway, looking north.



river to answer well to the pictures in the tomb of May¹ showing a palace with a river front, which the Great Palace at any rate can never have had. In any case next season will decide.

But the wall itself is a problem. Dr. Bagnani of the Italian Mission, who was staying with us at the beginning of its excavation, noticed the likeness to the scene in the tomb of Mahu, where Akhenaten drives round the bounds of the city. Although this is very attractive, we must agree with Mr. de Garis Davies in seeing a rope rather than a wall running between the towers in that representation. When taken in conjunction with the gate and the uraeus cornices which fell from the flanking doors, as well as with the royal building which was built up against it, and from which easy access was obtained, may it not be the "Window of Appearances" at which the king took his stand to shower favours on his courtiers? This is only a suggestion, but it seems worth making.

In conclusion there is one point of historical interest which cannot be passed over. In the last report, Dr. Frankfort demonstrated the comparative lateness of the North Suburb. This we may also extend to the North City. At both places we found this year a surprising number of ring-bezels bearing the name of Smenkhkher² and Tutankhaten (occasionally with the Amūn name). Akhenaten's name is in fact in a minority; but what was more surprising was the prevalence of the name of Nefertiti in this north part of El-'Amarnah. Her name occurs mainly on small double cartouches of faience, of which no fewer than fifteen, as well as a mould, were found. In several cases they occurred together with the names of Tutankhaten and Ankhsempaaten; never with the name of Smenkhkher². This, coupled with the fact that neither on the knob of the staff from T. 34. 3 nor on Hatiay's lintel, nor yet on the jambs from the building west of the wall, was her name erased, though Akhenaten's was in every case hacked away, seems to me to indicate the possibility of a definite championship of the Queen in the North City, in spite of her fall in favour of Meritaten and Smenkhkher² in the South. It also looks very much as if on the accession of Tutankhaten she again stepped into power.

Before closing this report it is my duty to thank on behalf of us all Mrs. Hubbard and others who have made this season's work possible. There is nothing more comforting than to feel that pure digging with little hope of finds (for our treasures this year were a complete surprise) has such generous support.

Tell el-'Amarnah was the capital of one of the greatest of empires. It alone of the royal cities of Egypt can be completely excavated, and it would be nothing short of a tragedy if that complete excavation should fail for lack of funds when in it alone lies the hope of elucidating the life and history of a most fascinating period³.

NOTE BY MR. SETON LLOYD.

House T. 36. 59 has a vaulted cellarette with an arched entrance, and as both vault and arch are extremely rare in Egypt at this period it seems worth noticing. It consists of the usual rectangular underground compartment for storing food or wine about three metres by one, entered through a low doorway from a small square shaft. The latter is

¹ N. de G. Davies, *Rock Tombs of El Amarna*, v.

² This report has of necessity been written away from books of reference. My gratitude is due to all those who have verified references, and particularly to Mr. Waddington for sending me copies of all the plans to Knossos.

open, while the cellarette itself is vaulted, and there is an almost perfect semi-circular arch consisting of two "rings" of mud-brick over the communicating doorway (Fig. 1, a perspective sketch).

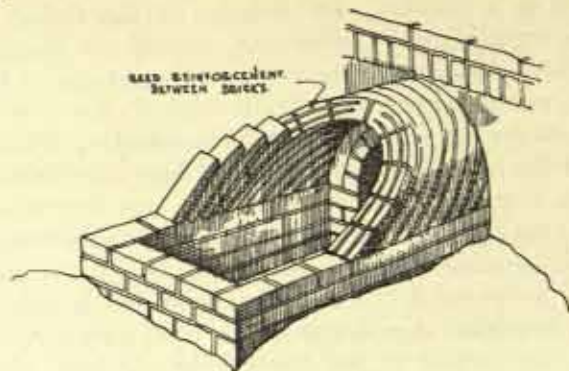





























Fig. 1. Scale roughly 1/60.

The vaulting is constructed on almost exactly the same principle as is seen in some Assyrian buildings, particularly the palace of Sargon at Khorsabad, which has a drain beneath it covered in in this way. The vault is formed of vertical "rings" of mud-brick, one "ring" lying back upon the other at an angle in order to obviate the necessity for temporary centering; only in this case the Egyptian builder has very ingeniously reinforced the vault by building in two reeds bent to the correct shape between each pair of vertical "rings." The soffit of the vault and the sides of the chamber are plastered with mud.
















































ADDITIONS TO THE HIEROGLYPHIC FOUNT¹ (1931)
























By ALAN H. GARDINER

Since the last list was published in this *Journal* (xv, 95), the actual demand for additional signs has been small. The present series is mainly drawn from the temple of Sethos I at Abydos (Dyn. XIX) and from the temple of Medinet Habu (Dyn. XX). Scholars who employ the fount for their books or articles are reminded that, if suitable material be supplied and reasonable notice given, I am always ready to have new matrices cut, provided that the hieroglyphs in question cannot be adequately represented by existing forms, and that there is likely to be some future use for the signs required.

- A 14* *a*  *c*  Det. death, enemy. Medinet Habu, Dyn. XX.
- A 42* *a*  *c*  Det. king. Abydos, Sethos Temple, Dyn. XIX.
- A 61 *a*  *c*  Det. *en* "turn back¹," and *msnh* "turn away (dazzled)²," Medinet Habu, Dyn. XX.
¹ Ex. inscr. year 5, l. 4. ² Ex. inscr. year 11, ll. 17, 30.
- A 62 *a*  *c*  Ideo. *wr* "Syrian" or "Asiatic prince¹," Dyn. XIX.
¹ Ex. Hittite Treaty, *passim*.
- A 63 *a*  *c*  Det. *hms* "sit," said of king¹. Abydos, Sethos Temple, stairway passage, Dyn. XIX.
¹ Also used as det. of *andm* "sit," when said of king. The insignia vary in different places.
- B 8 *a*  *c*  Det. women's names. Cairo Mus. no. 298, sarcophagus of Takhos. Ptolemaic.
- C 12 *a*  *c*  Ideo. or det. Amūn. Based on Leps., *Denkm.*, III, 180, Wādī es-Sebūr, Dyn. XIX.
- C 13 *a*  *c*  Ditto, reversed.
- C 14 *a*  *c*  Monogram for the name *'Imn-hr-hpš-f*¹, consisting of  C 12, but with substitution of  T 16*² for  S 40.
¹ Ex. Leps., *Denkm.*, III, 224, b. ² Note that in the Theinhardt fount, C 14, the scimitar faces the wrong way.
- C 15 *a*  *c*  Ditto, reversed.
- C 16 *a*  *c*  Ideo. *Tm* "Atum¹," Medinet Habu, Dyn. XX.
¹ Ex. inscr. year 5, l. 39.
- C 17 *a*  *c*  Ideo. *Mntw* "Month," Medinet Habu, Dyn. XX.

¹ *Catalogue of the Egyptian Hieroglyphic Printing Type from matrices owned and controlled by Dr. Alan H. Gardiner.* Oxford. At the University Press. 1928.

- C 18 a  c  Ideo. *Tnn* "Tanen." Abydos, Sethos Temple, staircase passage, N. wall, Dyn. XIX.
- C 19 a  c  Ideo. or det. *Pth* "Ptaḥ." Abydos, Sethos Temple, Dyn. XIX.
- C 20 a  c  Ideo. or det. *Pth* "Ptaḥ." Abydos, Sethos Temple, Dyn. XIX.
- D 52* a  c  Monogram for *smt(r)*, consisting of  D 52 and  S 29. Common in Dyn. XIX-XX.
- E 8* a  c  Det. of     *tbw* "kids." From Dêr el-Baḥri, Upper Central Court, Ramesside scene of women acrobats. This form replaces  E 8 after Dyn. XVIII.
- F 1* a  c  Det. *ršw* "rejoice," *ssn* "breathe," *fnd* "nose," in Dyn. XIX-XX. Medinet Habu, Dyn. XX.
- G 7* a  c  Ideo. *nty* "Anti." For this Dyn. XII form cf. Gardiner-Peet, *Inscriptions of Sinai*, Pt. I, Pl. 23, no. 85.
- G 7** a  c  Ideo. *nty* "Anti." This Dyn. XII form, e.g. stela of *Šn*, sold at Sotheby's sale, 1. 12. 1930; cf. also Schäfer-Lange, *Grab- und Denksteine*, Index, pp. 148-9.
- G 11* a  c  Det. *šm* "divine image." Abydos, Sethos Temple, stairway passage, Dyn. XIX.
- M 16* a  c  Ideo. *Tj-mḥw* "Lower Egypt." Abydos, Sethos Temple, Dyn. XIX.
- M 24* a  c  Ideo. "land¹" in   *twy* "the two lands." Abydos, Sethos Temple, Dyn. XIX.
¹ Properly, of course, the sign represents only *Tj-šm* "Upper Egypt."
- M 28* a  c  Ideo. *Tj-šm* "Upper Egypt." Abydos, Sethos Temple, Dyn. XIX.
- M 31* a  c  Det. *srd* "make to grow." Abydos, Sethos Temple, Rêr-Harakhti chapel, Dyn. XIX.
- N 34* a  c  Ideo. *blr(?)* "copper." Abydos, Sethos Temple, Dyn. XIX.
- O 24* a  c  Det. names of sun-obelisks. From Steindorff, *Grab des Ti*, Pl. 18. Dyn. V.
- O 25* a  c  Det. names of sun-obelisks. From Borchardt, *Rê-Heiligtum*, p. 39. Dyn. V.
- R 16* a  c  Ideo. or det. *Nfrtm* "Nefertum." Abydos, Sethos Temple, Dyn. XIX.
- R 26 a  c  Ideo. *smt* "unite." Abydos, Sethos Temple, king's chapel, Dyn. XIX.
- T 16* a  c  Ideo. or det. *ḥpš* "scimitar." Abydos, Sethos Temple, Dyn. XIX¹.
¹ In the Theinhardt fount, T 10, this sign faces in the wrong direction.

- T 36 *a*  *c*  Det. *ikm* "shield¹." Medinet Habu, Dyn. XX.
¹ Ex. inscr. year 8, l. 37.
- U 23* *a*  *c*  Phon. *mr*, later form of  U 23. British Museum, sarcophagus of Ankhnasneferibre, Dyn. XXVI.
- V 23* *a*  *c*  Phon. *mḥ*. Abydos, Sethos Temple, Dyn. XIX.
- V 29* *a*  *c*  Phon. *sk*, monogram consisting of  V 29 and  V 31. Common at Medinet Habu, Dyn. XX.
- V 39 *a*  *c*  Ideo. or det. *tît* "knot-amulet" of Isis. Abydos, Sethos Temple, Dyn. XIX.
- Aa 7** *a*  *c*  Det. or phon. det. *skr*; later equivalent of  Aa 7. Abydos, Sethos Temple, Dyn. XIX.
- Ff 6 *a*  *c*  Ideo. in  *stj* "drag," derived from hieratic form of  V 2. Medinet Habu, Dyn. XX.
- Ff 7 *a*  *c*  Phon. det. *smn*, *mn*, derived from hieratic form of  U 32. Abydos, Sethos Temple, Dyn. XIX.

BIBLIOGRAPHY: CHRISTIAN EGYPT (1930-1931)

By DE LACY O'LEARY, D.D.

The following abbreviations are used in this Bibliography:

- | | |
|--|--|
| <i>A.B.</i> = <i>Analecta Bollandiana</i> , Brussels. | <i>J.A.</i> = <i>Journal asiatique</i> . |
| <i>Ä.Z.</i> = <i>Zeitschrift für ägyptische Sprache</i> . | <i>J.R.A.S.</i> = <i>Journal of the Royal Asiatic Society</i> . |
| <i>B.I.F.</i> = <i>Bulletin de l'Inst. français d'arch. or. au Caire</i> . | <i>J.T.S.</i> = <i>Journal of Theological Studies</i> . |
| <i>B.J.R.L.</i> = <i>Bull. of the John Rylands Library, Manchester</i> . | <i>O.L.Z.</i> = <i>Orientalische Literaturzeitung</i> . |
| <i>B.N.J.</i> = <i>Byzantinisch-Neugriech. Jahrbuch</i> . | <i>R.B.</i> = <i>Revue biblique</i> . |
| <i>B.Z.</i> = <i>Byzantinische Zeitschrift</i> . | <i>R.E.A.</i> = <i>Revue de l'Égypte ancienne</i> . |
| <i>D.L.Z.</i> = <i>Deutsche Literaturzeitung</i> . | <i>R.H.E.</i> = <i>Revue d'histoire ecclésiastique</i> , Louvain. |
| <i>H.T.R.</i> = <i>Harvard Theological Review</i> . | <i>R.O.C.</i> = <i>Revue de l'Orient Chrétien</i> . |
| | <i>Z.D.M.G.</i> = <i>Zeitschr. d. Deutsch. Morgenl. Gesellschaft</i> . |
| | <i>Z.N.T.W.</i> = <i>Zeitschr. für Neutestamentliche Wissensch.</i> |

I. BIBLICAL.

(a) *Old Testament*.

W. H. WORRELL, *Book of Proverbs* (Sa'idic text), Chicago, *Or. Inst. Series*, XII (1931), xxx + 107, is from the same MS. as that used by G. SOBY in his edition (cf. *Journal*, xv (1929), 262). BURMESTER, *Les Proverbes de Salomon* (Bohairic text, cf. *Journal*, xvi (1930), 255) is reviewed by W. E. CRUM in *Journal*, xvi (1930), 171-2, by P. D. in *R.B.*, XL (1931), 142, anonymously and briefly in *Amer. J. Sem. Langs. and Lit.*, XLVII (1931), 143, and by W. VON BISSING in *Phil. Week.*, I (1931), 418-19.

BURMESTER-DÉVAUD, *Psalterii versio Memphitica* (cf. *Journal*, XII (1926), 306), was reviewed by H. SOTTAS in *R.E.A.*, II (1928/9), 275-6.

SANDERS-SCHMIDT, *Minor Prophets in the Freer Collection* (*Journal*, xv (1929), 262), was reviewed by O. EISSFELDT in *D.L.Z.*, I (1929), 1468-9.

(b) *New Testament*.

L. TH. LEFORT, *Une étrange recension de l'Apocalypse*, in *Muséon*, XLIII (1930), 1-6, gives a Sa'idic text of the 10/11 cent. from Paris B.N. Copte 131^b f. 10.

II. APOCRYPHAL, Gnostic, etc.

(a) *Apocryphal*.

F. H. HALLOCK, *An Apocalypse of SS. Andrew and Paul*, translated from the Coptic, appears in *J. Soc. Or. Research*, XIII (1929), 190-4.

The Apocalypse of S. Peter is completed in A. MINGANA, *Woodbrooke Studies*, in *B.J.R.L.*, XIV (1930), 423-562; though not a Coptic text the material given is closely related to the Coptic and will be necessarily employed in all future work on the Coptic apocalypse. An earlier portion of this material is reviewed by W. C. GRAHAM in *Amer. J. Sem. Langs.*, XLVI (1929/30), 65, and by J. DE GHELLINCK in *Gregorianum*, Rome, XI (1930), 274-5. Other work on this subject will be found in K. PRÜMM, *De genuino apocalypsis Petri textu*, in *Biblica*, x (1929), 62, and in J. R. HARRIS, *Odes of Solomon and the Apocalypse of Peter*, in *Expos. Times*, XLII (1930), 21-23.

The Acts of Peter are treated in C. SCHMIDT, *Zur Datierung der alten Petrusakten*, in *Z.N.T.W.*, XXIX (1930), 150-5, and in C. H. TURNER, *The Latin Acts of Peter*, in *J.T.S.*, XXXII (1931), 119-33.

On the Acts of Paul we have C. SCHMIDT, *Ein Berliner Fragment der alten ΠΑΡΑΞΕΙΣ ΠΑΥΛΟΥ*, in *Sitz. der Preuss. Akad. der Wiss.* (1931), 37-40.

The gospel of Peter is treated in L. VAGANAY, *L'évangile de Pierre*, Paris (1930), xxiii + 357.

H. C. YOUTIE, *Gothenburg Papyrus 21 and the Coptic version of the Letter to Abgar*, is published in *H.T.R.*, xxiv (1931), 61-5. The writer shows an intimate connexion between the text of this papyrus and the Coptic version as given by E. DRIOTON in *R.O.C.*, xx, 307, etc.

(b) *Gnostic*.

L. BORCHARDT, *Ein gnostisches Amulett*, appears in *Ä.Z.*, LXVI (1930), 49-51.

R. DUDON, *Le Gnostique de Saint Clément d'Alexandrie, opuscule inédit de Fénelon*, Paris (1930), xi+299, is reviewed by F. CAVALLERA in *R. d'ascétique et de mystique*, xi (1930), 202-3, and by E. ROSA in *Civiltà Cattolica* (1930), 39-48, 144-58.

III. LITURGICAL.

A. STEINWENTER, *Die Ordinationsbitten koptischer Kleriker*, in *Aegyptus*, xi (1931), 29-34, deals with the ordination of a deacon by Bishop Abraham of Hermouthis towards the end of the sixth century.

R. M. WOOLLEY, *Coptic Offices Translated* (1930), xx+154, is one of a series published by the Christian Knowledge Society which aims at giving a general view of ancient and oriental liturgies.

C. DEL GRANDE, *Liturgiae, preces*, etc. (cf. *Journal*, xv (1929), 264), is reviewed by O. TESCARI in *Riv. filol. class.*, vii (1929), 424-5.

D. O'LEARY, *Difnar*, II (cf. *Journal*, xv (1929), 264), is reviewed by R. ANTHES in *O.L.Z.*, xxxiii (1930), 436-7; and vol. III (cf. *Journal*, xvi (1930), 251) by P. PEETERS in *A.B.*, XLVIII (1930), 387, and by S. GASELER in *Bull. of the School of Orient. Langs.*, vi (1930), 237-9, who identifies several of the hymns in the supplement from texts in the Brit. Museum.

In the kindred Ethiopic liturgy we find Sir ERNEST BUDGE, *Book of Saints* (cf. *Journal*, xv (1929), 264), reviewed by E. MITTWOCH in *O.L.Z.*, xxxiii (1930), 1011-12.

On 21 May 1931 a lecture on Coptic church music was given at Oxford by E. NEWLANDSMITH, who contended that this music contains survivals from ancient Egyptian temple melodies. A similar lecture at Manchester was reported in the *Manchester Guardian* of 21. 4. 31 and has been reprinted in a brochure published by "The New Life Movement" (121-5 Charing Cross Rd., W.C.).

IV. LITERATURE.

(a) *Patres Apostolici and kindred works*.

H. CONNOLLY, *Didascalia Apostolorum, the Syriac version etc.* (cf. *Journal*, viii (1922), 178), is reviewed by P. PEETERS in *A.B.*, XLVIII (1930), 375-7, by R. SAVIGNAC in *Rev. Bibl.*, xxxix (1930), 474, and by B. CAPELLE in *Rech. de théol. anc. et médiév.*, Louvain, II (1930), 439; F. C. BURKITT, *The Didascalia*, appears in *J.T.S.*, xxxi (1930), 258-65.

L. TH. LEFORT, *Une citation copte de la 1^{re} Pseudo-Clémentine "de virginitate,"* in *B.I.F.*, xxx (1930), 509-11, deals with a passage found in Paris B.N. Copte 130¹, f. 21. R. The editor says: "nous avons la conviction qu'une puissante activité littéraire copte s'est développée aux iv^e et v^e siècles; et nous espérons même un jour démontrer que la série des grands évêques d'Alexandrie, d'Alexandre à Dioscore en passant par Athanase et Théophile, appartient bien plus à la littérature copte qu'à la littérature grecque" (509).

A. PUECH, *Quelques observations sur les écrits Pseudo-Clémentins à propos du livre récent de Carl Schmidt*, in *Rev. Sci. Relig.*, x (1930), 40-6, deals with problems raised by C. SCHMIDT, *Studien zu den Ps.-Clem.* (cf. *Journal*, xvi (1930), 251). In this connexion we may note also H. WAITZ, *Die Pseudo-Klementinen und ihre Quellenschriften*, in *Z.N.T.W.*, xxviii (1929), 241-72; and O. CULLMAN, *Le problème littéraire et historique du roman pseudo-Clémentin*, Paris (1930), viii+272, in the series *Études d'hist. et de philos. relig.* produced by the Faculty of Protestant Theology at Strasbourg, which is reviewed by A. in *R.B.*, xl (1931), 310-11.

(b) *Later Church Fathers*.

P. GLAUBE, *Ein Bruchstück des Origenes über Genesis*, I, 20 (Pap. Univ. Giessen, 17), in *Mitt. aus d. Pap. Samml. d. Giessener Univ. Bibl.*, II, Giessen (1928) (cf. *Journal*, xvi (1930), 251, where by error the author's name was given as "G. D. Paul"), has been reviewed by A. PUECH in *Bull. Assoc. G. Budé*, xxii (1929) 24-9, who gives a French translation of the fragment, by A. C. (ALDERINI) in *Aegyptus*, x (1929, pub. Aug. 1930), 317, and by W. SCHUBART in *O.L.Z.*, xxxiii (1930), 455-6.

H. DE Vries, *Homélies coptes de la Vaticane*, II (1929), vi+315, has been reviewed by J. POLOTSKY in *O.L.Z.*, xxxiii (1930), 871-81. This new volume gives seven homilies from Vat. Copt. 58, 59, 62, 69; two

of these are ascribed to Zacharias, Bishop of $\epsilon\zeta\omega\sigma\tau$, one each to Cyril of Alexandria, Theophilus, Basil of Caesarea and Archelaus of Neapolis, and one is anonymous.

TH. HOPFNER, *Index locupletissimus in Migne Patrol. Graeca*, t (1-17), Paris (1928), viii+384, is an exhaustive index supplementary to that already published in Migne's series in 1912. It is reviewed by P. THOMSEN in *Phil. Woch.*, XLIX (1930), 845-6, and by FR. DIEKAMP in *Gnomon*, VII (1931), 174-6.

S. ZANUTTO, *Bibl. etiopica*, Rome (1929), 36, a continuation of G. Fumagalli's *Bibliografia* of 1893, is reviewed by P. PETERS in *A.B.*, XLVIII (1930), 388.

G. GRAP, *Die Literatur der Kopten in der arabischen Zeit*, in *Z.D.M.G.*, LXXXIV (1930), *91*, is the résumé of what was evidently a very interesting paper read at the German orientalist congress at Vienna last year (on 13. 6. 30).

V. CHURCH HISTORY.

(a) *History and Theology of the Egyptian and Kindred Churches, etc.*

H. I. BELL, *Jews and Christians (Journal)*, XIII (1927), 254, is reviewed by C. WESSELY in *B.N.J.*, VIII (1930), 496-9.

M. JUGIE, *Theologia dogmatica...dissidentium* (cf. *Journal*, XIII (1927), 254), vols. III, IV (1930-1), 510, 666, have appeared. Vol. III is reviewed by R. DRAGUET in *R.H.E.*, XXXI (1931), 93-5.

R. STROTHMANN, *Die koptischen Metropolen der Abessinischen Kirche in der Neuzeit*, appears in *Theol. Blätter*, IX (1930), 225-33.

J. KRAUS, *Die Anfänge des Christentums in Nubia*, Vienna (1931), viii+158, is a doctoral dissertation. It seems interesting and is fully documented, but does not contain anything new.

Amongst works dealing with the daughter church of Abyssinia, H. M. HYATT, *Church of Abyssinia* (cf. *Journal*, XVI (1930), 252), is reviewed by M. SPINKA in *Amer. J. Sem. Langs.*, XLVI (1930), 209-10, and by G. NOLLET in *Ethiops*, III (1930), 15-16. TH. S. DI S. DETOLE, *Etiopia Francescana* (cf. *Journal*, XVI (1930), 252), is reviewed by J. SIMON in *A.B.*, XLVIII (1930), 447-8.

A. BAUDRILLAT, DE MAYER, VAN CAUWENBERGH, *Dict. d'histoire et de géographie ecclésiastique*, Paris, XXI-XXX (1929-31), 449-1402, 1-1390, is resumed after a long interval. It is reviewed by F. HALKIN in *A.B.*, XLIX (1931), 119-23, who, however, considers that some of the contributors show a lack of critical spirit.

(b) *Hagiography.*

L. ST.-P. GIRARD, *Un fragment sahidique de la vie de S. Arsène le grand, précepteur des enfants de Théodose, anachorète à Scété et à Toura (vers 410)*, appears in *B.I.F.*, XXX (1930), 195-9.

H. R. HALL, *An Egyptian St. Christopher*, will be found in *Journal*, XV (1929), 1, and plate.

E. SCHWARTZ, *Cyrrill und der Mönch Viktor* (cf. *Journal*, XVI (1930), 252), has been reviewed by H. KOCH in *Theol. Lit. Z.*, LV (1930), 442.

A. ZIKRI, *Un fragment copte inédit sur le patriarche Pierre d'Alexandrie*, will be found in *Ann. Serv.*, XXIX (1929), 71-5, with 1 plate: the text contains 51 lines recto, 54 verso.

M. CHAÏNE, *La recension copte de la vie d'Abba Martyrianos de Césarée*, in *R.O.C.*, VII (1929/30), 140-80, based on the Bohairic text of Vatican Cod. Copt. LXII, 277-98, is reviewed by J. SIMON in *A.B.*, XLIX (1931), 142-3. Of this life there are various editions in Greek, Latin, Armenian, Syriac, and Arabic. In the Coptic text alone the name Martirianos is changed to Martyrianos, the name of the nun Paula becomes Palatia, etc.; "est-ce une version du grec ou une adaptation?—M. Ch. n'a pas abordé ce problème."

MAX HERZOG ZU SACHSEN, *Der heilige Theodor*, München (1929), 96, reviewed by KIRSCH in *Rom. Quartalschr.* (1929), 185, deals with the monk of Studium and so lies outside our interests.

SIR E. A. W. BUDGE, *George of Lydda* (cf. *Journal*, XVI (1930), 252), is reviewed by J. SIMON in *A.B.*, XLIX (1931), 166-8, who points out that there are oriental versions of the passion of St. George not mentioned by B. and that, since 1924, we have a new edition of the Coptic passion in the *C.S.C.O.* The Ethiopic passion is more fully developed than the Syriac, less so than the Coptic: the Coptic reports three deaths of St. G., the Ethiopic two, the Syriac one: several incidents given in the Coptic do not appear in the Ethiopic or Syriac. The notice in the Ethiopic synaxarium is taken directly from the Coptic synax. and so is abridged from a passion containing more than the Ethiopic passion. None of these oriental texts gives details not also found in the Greek. A brief note on this same work appearing in Messrs. Luzac's *Oriental List* for Jan.-March 1931, p. 6, remarks: "We could have been spared the numerous crude pictures from

the Ethiopic MSS. portraying incidents of revolting cruelty in the life of St. George, in which an unabashed Sadism is allowed to run riot."

G. BARDY, *Clemente de Alejandria*, Madrid (1930), 212, is a Spanish translation of G. B.'s work (cf. *Journal*, XIII (1927), 255) by J. Guasp Delgado.

(c) *Monasticism.*

F. HALKIN, *L'histoire Lausique et les vies grecques de S. Pachôme*, in *A.B.*, XLVIII (1930), 257-301, is a valuable continuation of the author's *Vies grecques de S. P.* (*Journal*, XVI (1930), 252). The earlier work has been reviewed by P. CHANTRAINE in *R. Phil.*, LVI (1930), 408, this later one by ALICE GODINA in *Aegyptus*, XI (1931), 229-30.

E. KOURILLAS, *Ἱστορία τοῦ Ἀσκητισμοῦ*, Salonika (1929), 248, 12 figs., has been reviewed by F. HALKIN in *A.B.*, XLVIII (1930), 451-3, and by I. HAUSHERR in *Orientalia Christiana*, XVIII (1930), 237-9.

J. WAGENMANN, *Entwicklungsgeschichte der ältesten Mönchtums*, Tübingen (1929), 34, is reviewed by F. HALKIN in *A.B.*, XLVIII (1930), 385.

A. L. SCHMITZ, *Die Welt der ägyptischen Einsiedler und Mönche*, is published in *Rom. Quartalschr.*, XLVI (1929), 189-243.

(d) *Recent History.*

The London *Times* of 15. 12. 30 reports that as the result of friction between the Coptic Patriarch Yohannes XIX (consecr. 16. 12. 28) and the Coptic Council, the Patriarch called on the Egyptian Prime Minister to inform him that he wished to abdicate and retire to a monastery in Upper Egypt. The Patriarch was asked to leave the matter in the hands of the ministry. "His Beatitude has agreed to do this, and it is understood that the law governing the constitution of the Coptic Council may be amended, as it is considered that at present the lay element in the Church is given too much power in the Council." The same paper on 25. 1. 31 reported the issue of a statement in which the Egyptian Government stated that the lay council could not outvote the ecclesiastical council on purely religious matters.

VI. NON-LITERARY TEXTS.

L. AMUNDSEN, *Magical Texts on an Oslo Ostrakon*, appears in *Symb. Oslo.*, VII (1929), 36-8, and U. WILCKEN, *Zu drei Osloer Papyri*, in the same publication, 33-5.

The second volume, S. EITREM and L. AMUNDSEN, *Papyri Osloenses*, II, Oslo (1931), xi+182, 9 plates, has now appeared.

A. S. HUNT, *An incantation in the Ashmolean Museum*, was published in *Journal*, XVI (1930), 155-7, and has been reviewed by K. PREISENDANZ in *Phil. Woch.*, XLIX (1930), 748-9.

P. JERNSTEDT, *Coptica*, appeared in *Ä.Z.*, LXIV (1929), 122-35, and contained the following items: (i) Σαρ(ύ)-πρω(τ)ι=πρω(τ)ι; (ii) τερ(ν)ο(σ)ε, τερ(ν)ο(σ)ῃ, τερ(ν)ο(σ)ειν; (iii) Ein sprichwörtlicher Vergleich (πῶς ποτ' ἄλλ' εἰδὼ εἰδὼτατο); (iv) Zwei Bibelzitate bei Shenute (Lemm, *Kopt. Mus.*, 118, Prov. 6. 26=Leipoldt, Shenute, 87, 14); (v) τρω(σ)α=Obst. The same author's *Die koptischen Papyri des Asiatischen Museums (Leningrad)*, in *Publications de la Société Égyptologique à l'Université de Leningrad*, VI (1930), 21-44 (lith.), gives fifteen fragmentary non-literary papyri, formerly belonging to Prof. Turaiyef, with commentary and (German) translation.

Less directly connected with Christian Egypt is S. MÖLLER, *Griech. Papyri aus dem Berliner Museum*, Göteborg (1929), viii+95, which has been reviewed by K. SCHMIDT in *Phil. Woch.*, XLIX (1930), 674-7, by W. SCHUBART in *Gnomon*, VI (1930), 612-14, and by B. OLSSON in *D.L.Z.*, LI (1930), 830-1.

M. MORGENSEN, *La Glyptothèque Ny Carlsberg; La Collection égyptienne*, Copenhagen (1930), planches cxxii, describes the Egyptian collection in the Ny Carlsberg Glyptothek at Copenhagen. Coptic occurs in some of the inscriptions on pp. cxx, cxxi.

K. PREISENDANZ, *Papyri Graecae Magicae*, Leipzig (1928) (cf. *Journal*, XVI (1930), 253), has been reviewed by A. CALDERINI in *Aegyptus*, XI (1931), 92-3, and by KERÉNYI KÁROLY in *Egyptolog. Phil. Közl.*, LIII (1929), 124-6.

K. WESSELY, *Synopsis florae magicae*, in *B.I.F.*, XXX (1930), 17-26, has a certain bearing on the interpretation of magical texts.

W. H. WORRELL, *A Coptic Wizard's Hoard*, in *Amer. J. Sem. Langs. and Lit.*, XLVI (1930), 239-62, reproduces the contents of Michigan Pap. 593-603: of these 593 is the original, 594, 596, 599 and 603 are

copies; there are three groups of texts. The Coptic text restored from 593 and the copies is given (242-54), and is followed by a translation and notes (255-6). The text contains several curious words.

A. VAN LANTSCHOOT, *Rec. des colophons* (cf. *Journal*, xv (1929), 267), is reviewed by W. E. CRUM in *Journal*, xvi (1930), 155-7.

A. KROPPE, *Ausgewählte Koptische Zaubertexte*, Brux. (1930-31, Fondation, Reine Élisabeth), in 3 vols. I. Texts, xix+123. II. Trans., comments, xv+286. III. Introduction, viii+253. With plates and figs.—15 entirely new texts from various collections. Elaborate commentary, full indices.

VII. PHILOLOGY.

W. E. CRUM, *Coptic Dictionary*, Part II, Oxford (1930), vii, 89-252, containing *eige-norse*, has now appeared; reviewed by W. HENGSTENBERG in *B.Z.*, xxxi (1931), 77-99. The first part has been reviewed by C. SCHMIDT in *D.L.Z.*, li (1930), 1298-31, by A. ERMAN in *D.L.Z.*, lii (1931), 484-7, and by W. H. WORRELL in *Amer. J. Sem. Langs. and Lit.*, xlvii (1930), 56-8. W. E. CRUM, *Ein neues Verbalpräfix im Koptischen*, appears in *Ä.Z.*, lxv (1930), 124-7.

A. H. GARDINER, *The origin of certain Coptic grammatical elements*, in *Journal*, xvi (1930), 220-34 deals with (i) formative *epe-*, (ii) origin of *ἄνατῆ*, and (iii) "until he hears" *ḡante-*, *ḡate-*.

H. S. GEHMAN, *εἰδὼ οὐτιε* and *εἰδὼ οὐταε* to express comparison of inequality in Bohairic, appeared in *J. Soc. Or. Res.*, xii (1928), 151-2 (cf. *Journal*, xiii (1927), 260).

W. HENGSTENBERG, *Die griechischen-koptischen μολλον Ostraca*, in *Ä.Z.*, lxix (1930), 51-68, criticizes Mallon's article in *R.E.A.* (cf. *Journal*, xvi (1930), 253 (vide St.-Paul Girard in V (b) above).

L. HOMBURGER, *Dialectes coptes et mandés* (cf. *Journal*, xvi (1930), 253) has been appreciatively reviewed by G. B. FIGHI in *Aegyptus*, x (1929), 326-7. The apparent discrepancy of date is explained by the fact that the *Aegyptus* for 1929 was delayed in appearance.

G. HEUSER, *Die Personennamen* (cf. *Journal*, xvi (1930), 253), has been reviewed by H. O. LANGE in *D.L.Z.*, li (1930), 1313-14, by J. POLOTSKY in *O.L.Z.*, xxxiii (1930), 618-19, and by P. COLLETT in *R. Phil.*, lvi (1930), 384-5.

A. MALLON, *Grammaire copte* (cf. *Journal*, xiii (1927), 256), was reviewed by E. C. in *R.E.A.*, ii (1929), 284.

H. J. POLOTSKY, *Sahidisches κῑωων*, appears in *Ä.Z.*, lxv (1930), 130.

E. SCHWYTZER, *Griechische Interjectionen und griechische Buchstabennamen au, -a*, appearing in *Z. f. vergleich. Sprachforschung*, lviii (1931), 170-205, includes an excursus (IV. on 201-3) "zu den griech.-koptischen Buchstabennamen."

The recent edition of G. STEINDORFF, *Koptische Grammatik* (cf. *Journal*, xvi (1930), 254), is reviewed by W. TILL in *D.L.Z.*, li (1930), 1495-9, and by W. E. CRUM in *O.L.Z.*, xxxiv (1931), 114-15.

W. TILL, *Koptische Chrestomathie* (cf. *Journal*, xvi (1930), 255), is reviewed by A. C(ALDERINI) in *Aegyptus*, x (1929), 316, which did not appear until August 1930, by W. E. CRUM in *Wiener Z. f. d. Kunde des Morgenlands*, xxxvii (1930), 307-9, and by S. GASELEE in *Bull. Sch. Or. Studies*, vi (1930), 257-8. The same author's *Achmimisch-kopt. Grammatik* (cf. *Journal*, xv (1929), 268) is reviewed by W. SPIEGELBERG in *O.L.Z.*, xxxiii (1930), 640-1.

W. H. WORRELL, who is making a special study of Coptic phonology, is the author of *The evolution of velar, palatal, and dental stops in Coptic*, in *Journal*, xv (1929), 191-3, and of *The Pronunciation of Coptic*, in *J. Amer. Or. Soc.*, l (1930), 144-9; in the latter he points out that modern tradition, confined to Bohairic, is extremely confused and leaves many points undecided.

E. ZYHLARZ, *Grundzüge der nubischen Grammatik im Christlichen Frühmittelalter* (1928), xvi+192, is reviewed by W. CZERMAK in *Africa*, ii (1929), 422-3.

VIII. ARCHAEOLOGY.

(a) *Travel, exploration, etc.*

B. ELSTON, *Travellers' Handbook for Egypt and the Sudan*, Lond. (1929), cxxxi+588, is published by Messrs. T. Cook primarily for the use of their tourist parties. Information is included about the Wādī en-Naṭrān and its monasteries (26-8, 457), the monastery of S. Simeon at Aswān (433-4), the Red Monastery (206), the monastery at Medinet Habu (379), the churches of Old Cairo (84-6), and the Coptic Museum (85). It is reviewed by L. BORCHARDT in *O.L.Z.*, xxxiv (1931), 219.

U. MONNETT DE VILLARD, *Note storica sulle chiese di al-Fustat*, in *Rend. della R. Accad. Naz. dei Lincei*, v (1929), 285-334, is reviewed by P. P(ETERS) in *A.B.*, xlvi (1930), 385-7.

JOH. GEORG, HERZOG ZU SACHSEN, *Neue Streifzüge durch die Kirchen u. Klöster Ägyptens*, Leipzig (1930), x+59, 171 illustr., is also reviewed by P. PETERS in *A.B.*, XLVIII (1930), 385-7.

E. M. SAWYER, *The First Monasteries*, in *Antiquity*, IV (1930), 316-26, 8 plates, contains a description of the monasteries of the Wādī en-Naṭrān which is extremely interesting as the account of an actual visit; there are, however, several inaccuracies in etymologies, names, and statements.

W. F. VOLBACH, *Die koptischen Klöster in der nitratischen Wüste*, appears in *Atlantis* (1929), 566-9.

F. LL. GRIFFITH, *Christian Documents from Nubia* (cf. *Journal*, xv (1929), 269), is reviewed by A. SCHAFF in *O.L.Z.*, XXXIII (1930), 28-9.

(b) *Art and Architecture.*

S. GASELEE deals with *The Coptic Period* (55-60 and 274-282, 35 illustr. and one colour plate) in Sir DENISON ROSS, *The Art of Egypt throughout the Ages*, London (1931) (7)+354, treating of wall paintings, ivories, architecture, textiles, manuscripts etc.

CH. DIEHL, *L'Art chrétien* (cf. *Journal*, xv (1929), 270), is reviewed by E. W. in *B.Z.*, XXX (1930), 448-50.

A. TULLI, *Le lucerne copte del Museo Egizio Vaticano*, appeared in *Riv. Stud. Or.*, XII (1929), 89-112.

R. MIEDEMA, *De Koptische Kunst*, Amsterdam (1929), II, is reported but I have not been able to see a copy.

E. PAUTY, *Bois sculpté d'églises coptes* (1931), Cairo (1930), vii+39, 45 pl. Introd. by G. WIET.

M. S. DIMAND, *A recent gift of Near Eastern Art*, in *Bull. Metrop. Museum of Art*, New York, XXVI (1931), 6-12, 8 figs., describes an acquisition of Egypto-Arabic carved wooden panels and bronzes.

G. DUTHUIT, *La Sculpture copte, statues, bas-reliefs, masques*, is announced as in preparation: it claims to represent Coptic art by examples from various museums and to assign the geographical and chronological positions of the types selected. The work is to appear in October 1931.

(c) *Textiles.*

Besides references to textiles in S. Gaselee's contribution to "The Art of Egypt throughout the Ages" (above) we note: M. S. DIMAND, *Coptic and Egypto-Arabic Textiles*, in *Bull. Metrop. Mus. of Art*, New York, XXVI (1931), 89-91, 4 figs., which deals with 20 pieces recently acquired by the Museum.

NOTES AND NEWS

The Society's Annual Exhibition was held this year from September 8th to October 3rd at the Wellcome Historical Medical Museum in London. For the hospitable provision of an excellent room, together with show-cases and the ready help of his staff, the Society is deeply indebted to Dr. Henry S. Wellcome, and the committee has also to express its gratitude for unfailing assistance to Mr. L. W. G. Malcolm, the conservator of the Museum.

In addition to the results of last season's work at Tell-el-'Amarnah and Armant, the Society was able to show a representative loan exhibition of Egyptian jewellery. This display, which owed its existence to the initiative and generosity of the President, would not have been possible without the ready co-operation of many collectors, among whom Mr. H. S. Beck and Mrs. G. D. Nash laid the Society under particular obligation. A large share of the work of selection fell on the shoulders of Mr. Glanville and Mr. Myers; and for the attractive presentation of the loan-exhibits the Society has chiefly to thank Mr. Guy Brunton, who generously undertook the laborious task of arrangement and description.

In connexion with the Exhibition Mr. Pendlebury lectured on September 10th at the Society of Antiquaries on his recent excavations at Tell el-'Amarnah. This lecture was so well attended and so enthusiastically received that it was decided to repeat it on October 2nd at the Royal Society. A new feature of the lecture was the introduction of a short cinematograph film showing the excavations in progress.

The expedition to El-'Amarnah this winter will consist of Mr. and Mrs. J. D. S. Pendlebury, Mr. J. H. S. Waddington, Mr. H. W. Fairman, Mr. S. R. Sherman and, by permission of the Committee, Miss M. A. Chubb, Assistant Secretary. It is also hoped to obtain the services of another architect. Work will be begun about October 25th and will probably continue for three months. The main point of attack will be the ceremonial entrance through the Great Wall, with its fallen frescoes; the suspected palace to the north; and the scattered houses which lie between the North Suburb and the North City.

The Armant Expedition will work for two or three months this winter in the various cemeteries on the concession. It is hoped that valuable material of Early Predynastic, Middle Kingdom and Old Kingdom date will be found. The staff will consist of O. H. Myers (Director), H. W. Fairman, T. J. C. Baly, R. N. Lester and W. B. K. Shaw. Dr. Wilfrid Jackson of the Manchester University Museum will visit the expedition to deal with the osteological material.

In a circular letter sent out in May last to all excavators in Egypt and to others interested in Egyptology Mr. O. H. Myers calls attention to the need for a Corpus of Graeco-Roman pottery in Egypt, and makes suggestions as to the lines on which such a Corpus might be undertaken. The scheme already has the approval of several excavators, and it is hoped that a meeting may take place in Cairo early in November at which both this and other matters of general interest to excavation may be discussed.

The Director of the Society's excavations at Armant asks us to publish the following note:

The excavations at the Bucheum at Armant and the preparations for the publication of the final report have proved that at unknown dates prior to the excavations of the Society a number of stelae of the Ptolemaic and Roman periods have been removed from the Bucheum. Two of the missing stelae are known to be in museums in Cairo and in Europe, and it is possible that others are to be found in other museums. In order that the Report on the Bucheum may be as complete as possible the Director begs curators of museums and collections in which stelae or inscriptions referring to Buchis are to be found to be good enough to notify him, and if possible to send him photographs of the objects. The number of Roman stelae missing is indefinite, but in the Ptolemaic period possibly only four more are needed to complete the series. The missing Ptolemaic stelae are those of a bull which should have died about Year 13 of Ptolemy III, a bull which should have died about Year 11 of Ptolemy V, and possibly two bulls between Year 4 of Alexander the Great and Year 14 of Ptolemy I. A photograph of a Roman stela will be found in *Rec. trav.*, xxx, opposite p. 12; a photograph of a Ptolemaic stela will be found in *Journal*, xvi, Pl. xlii, fig. 2.

Mr. Pendlebury sends us, at the moment of our going to press, the following note referring to the limestone head from Tell el-'Amarnah published in this number, p. 236 and Pl. lxxii, figs. 3 and 4:

Mr. Brunton, Dr. Seligman and Mr. N. de G. Davies have all suggested that the small head found last season at El-'Amarnah is not female, or alternatively that it is not one of the princesses. These opinions carry such weight that I feel they should be put forward at once. Briefly our answers are: (1) No male throat has those lines round it, (2) The lines running down from the corners of the mouth are common to this figure and to Dr. Frankfort's Princess, (3) The absence of an elongated skull is only apparent, for there is plenty of room for it inside the wig, (4) The set of the head on the neck is precisely that of the figure on the back of Tutankhamun's chair. The identity of the wigs has already been mentioned.

Members of the Society will have heard with deep regret of the death of Mr. Cecil M. Firth, Inspector of Antiquities at Saqqārah. Firth was one of those many archaeologists who find their way into the subject by accident, for he was trained for the bar, and actually went out to Egypt to a post in the Ministry of Justice. Being strongly attracted, however, by Egyptology, he applied for and obtained an appointment in the Department of Antiquities which happened to be vacant. In this department he served for thirty years, a period broken only by military service in 1914—1918. He was associated, under Dr. Reisner, with the Archaeological Survey of Nubia, 1907—10, and was alone responsible for a great part of the admirable publication of its results. Since 1923 he had been Inspector at Saqqārah, and in this capacity carried out the excavations which revealed to us the architecture of the Third Dynasty and revolutionized the history of Egyptian art.

We regret to learn of the death of Frau Luise Klebs, which took place on May 24th last. Frau Klebs rendered a great service to Egyptology by her *Reliefs des Alten Reiches*, which appeared in 1914, and her *Reliefs und Malereien des Mittleren Reiches*, published in 1921. These works represented the result of a vast and painstaking industry. Frau

Klebs intended to continue her task down into the New Empire, and at the time of her death a volume comprising the reliefs which deal with the life of the people was actually ready for press, while material for another, which was to treat of the life of the king and the nobles, had been collected and only needed working into final form.

A proposal has been made to commemorate the late Dr. H. R. Hall by a presentation to the Department in the British Museum of which for six years he was Keeper. Two objects have been selected, one of which Dr. Hall had himself chosen and was anxious to acquire for the Museum. This is an Egyptian figure carved in stone of an unusual kind, of uncertain date.

The other is an Assyrian bronze of the 8th or 7th century B.C. representing a bearded man leaning forward as if driving a chariot. This piece is extremely unusual and of very great artistic merit. It is hoped that a sum will be subscribed sufficient for the purchase of at least one of these. Readers of the *Journal* who may care to join in this tribute to the memory of a scholar who did much for the Society should send their contributions to the Secretary of the Society at 13 Tavistock Square, W.C.1.

We congratulate Dr. Cowley, Bodley's Librarian at Oxford, on the honour of knighthood which has recently been conferred on him. In his capacity as a Semitic scholar Dr. Cowley has more than once contributed to this *Journal*, in connexion with the recently discovered Sinaitic script and its relation to early Semitic writing.

As we go to press the XVIIIth International Congress of Orientalists, to be held at Leyden on September 7-12th, is actually in progress. The Society is being officially represented there by Mr. E. S. M. Perowne, F.S.A., a member of its Committee.

We have received the first number of the new Quarterly of the Department of Antiquities in Palestine. It consists of 52 pages and 31 plates, and is published by the Oxford University Press. This journal, as the organ of a department which has a very big future before it, will doubtless rapidly take an important place among archaeological publications.

The first number of the *Bulletin of the American Institute for Persian Art and Archaeology* has just appeared. The Institute, whose offices are at 50 East 42nd Street, New York, was founded in 1930. Among the activities which it embraces is excavation in Persia. A joint expedition of the University Museum, Philadelphia and the Pennsylvania Museum of Art is already working at Hecatompylos, the modern Damghân; the Oriental Institute of the University of Chicago is to restore the ruins of Persepolis; and the William Rockhill Nelson Trust of Kansas City has sent an expedition to Asterabad. The importance of these events in the solution of the archaeological problems of the Near East is incalculable.

In each copy of the present number is inserted a slip on which are printed the conventions of the *Journal* in regard to the spelling of Arabic and Ancient Egyptian proper names, the use of italic type, contractions and abbreviations, and various other points of style. It is not contended that the rules here given are necessarily better than any others, but, since in the interests of uniformity and economy it is necessary to have some rules, the Editor hopes that contributors will accept their guidance. Spare copies of the slip can always be obtained from the Society's London office.

Will contributors please note that if they wish for offprints of their articles over and above the twenty-five supplied to them free of charge they can obtain these at cost price? They should in this case, however, indicate their wish as early as possible, for, in the case of an illustrated article, once the plates are printed off, which may happen long before the publication of the number, it is impossible to order the extra copies necessary for the offprints.

Professor F. Ll. Griffith contributes the following note on his excavations of last winter in the Sudan:

Owing to the war the organization known as "The Oxford Excavations in Nubia" lay dormant from 1913 until 1930; it was then revived in order to take advantage of a valuable concession given by the Sudan Government at Kawa, on the west bank of the Nile, nearly opposite Dongola, which had meanwhile been identified by Mr. Addison as the ancient Gem-Aten with the worship of a form of Amūn in a temple built by Tirhaqah. A preliminary excavation at the beginning of 1930 had yielded promising results, and shown that at least two temples existed there. In the winter of 1930-31 three temples were completely excavated, *viz.*, A and B, two small temples side by side and parallel to the river, and T, the temple of Tirhakah, at right angles to A and B. It appeared probable that the site had been occupied by the Egyptians at an early date and that Amenophis III had re-founded the colony in the expansion of the New Empire, introduced the worship of Amūn, and built a small temple named Gem-Aten on the site later occupied by A and B. Tutankhamūn built the shrine and columnar hall of A in sandstone and sculptured them, and Tirhakah added a sculptured pylon and an outer brick court and gateway. In the shrine and some brick chambers surrounding it we found interesting bronzes and objects in faience, some with Ethiopian cartouches, and an exquisite figure of an Eighteenth-Dynasty king in gold.

Temple T was built wholly by Tirhakah on an interesting plan, and adorned with granite monuments. We found four granite rams, six great stelae, one of them of Aneramūn, some important inscriptions and graffiti from the Ethiopian and Meroitic ages and a group of figures in granite, a sphinx, a statue of the king, and two apes, besides another mass of bronzes and faience objects left at the destruction of the temple, which was probably carried out by Petronius' army in 23 B.C.

Such in brief are the results of the most important season's work that we have had in Nubia, and the best season in my personal experience of excavation, both for material finds and for history. The finds are to be halved with the Sudan Government, but all the smaller objects were brought to England for exhibition and study. Our share will be divided between the Ashmolean and British Museums; finally the Glyptothek Ny Carlsberg at Copenhagen has made very substantial purchases from among the larger monuments.

NOTICES OF RECENT PUBLICATIONS

Memoir of Thomas Joseph Pettigrew, F.R.C.S., F.R.S., F.S.A. (1791-1865). By WARREN R. DAWSON, F.R.S.E., etc., etc., Honorary Librarian of Lloyd's. New York, 1931. 8vo.

Pettigrew, known to Egyptologists for his valuable researches on mummies, began life as son of an apothecary-surgeon in Fleet-street, who had been naval surgeon on board *H.M.S. Victory* twenty years before Trafalgar. Young Pettigrew studied anatomy with zeal, and taught it with such success in lectures and in print that he soon fell under the notice of Sir Astley Cooper and other distinguished surgeons, his accurate drawings and observations showing a distinct advance on those of his predecessors in that famous age of embryonic but progressive medical training. His thoroughness may be compared to that of his biographer, who has produced a really fascinating memoir, with well-chosen illustrations, and references to all kinds of interesting persons. Pettigrew enjoyed the patronage of the most intellectual of the sons of George III, first the Duke of Kent, and after his death the Duke of Sussex, whose great library was amassed under his guidance as librarian. Pettigrew had great success as Secretary of the Medical Society, which his methodical and careful ways raised to prosperity. Besides his extensive medical practice he took part in every intellectual movement and had strong leanings towards archaeology. He became F.S.A. in 1824. In 1825 he began collecting notes on Egyptology and he was largely responsible for the foundation of the British Archaeological Association in 1843. His large work on *Egyptian Mummies*, by which he is best known to Egyptologists, appeared in 1834. Dawson's memoir, which terminates with a full, abundant and varied bibliography of Pettigrew's writings, occupies the greater part of three numbers of *Medical Life*, Nos. 124-126, and is paged consecutively from 1 to 136, so admitting of satisfactory binding as a separate work.

F. LL. GRIFFITH.

The Great Tomb-Robberies of the Twentieth Egyptian Dynasty, being a critical study, with translations and commentaries, of the papyri in which these are recorded. By T. ERIC PEET, Brunner Professor of Egyptology in the University of Liverpool; formerly Laycock Student in Egyptology at Worcester College, Oxford. I, Text, 8vo; II, Plates, large fo.; Oxford, 1930.

The glories of the New Empire in Egypt petered out in the Twentieth Dynasty, in which there ruled a long series of kings III-XI bearing the name of Ramesses but, after the first, without a spark of the energy and enterprise of their namesakes (I and II) in the Nineteenth Dynasty. Before the end Egypt had lost all its consequence abroad, and was impoverished by ill-government and by the demands of superstition, so that honest labour went unpaid, and the population of the west bank of Thebes, hitherto thriving on the work and ceremonies of the metropolitan cemeteries, had to turn for a living to robbing the tombs, which their forefathers had richly provided with clothing, food, ornaments, vessels and furniture. By the time of Ramesses IX it seems that few of the private tombs had not been plundered, and attacks on the royal sepulchres had at last drawn the attention of the authorities to these outrageous acts. The monuments of the later years of the dynasty are best exemplified by the melancholy reports of the trials of tomb-robbers from the reign of Ramesses IX onwards, and by the tale of Unamün's unhappy voyage to Syria for cedar-wood just after its close.

It is these legal reports and other documents connected therewith which, some twelve years ago, Professor Peet undertook to collect, publish and decipher. It was a vast undertaking and the results have appeared in two instalments. The most formidable part of the task was to make a facsimile of two papyri at Liverpool, the Mayer Papyri A and B. This was done and issued with translation in 1920. The hieratic of these two papyri is of extreme difficulty, the writing is a scrawl that has almost lost the characteristics of individual hieratic signs, being largely reduced to a series of parallel lines or curves. To have translated the Mayer papyri, as the late Wilhelm Spiegelberg did as long ago as 1891, is one of the most remarkable feats of scholarship ever performed by that active and comprehensive mind. Peet's copy of the writing, considering the condition of the papyri, is a marvel of accuracy and industry, and by patient comparison

of parallels in various shades of orthography, he has arrived at full and accurate interpretation of almost every *crux*.

The second instalment is the work now under review, containing the remainder of the "Robberies" papyri, in London, Turin and Vienna, and one lately taken to America. The labour of copying and interpretation was here comparatively light; although some passages are in the same difficult script as the Mayer papyri, others are in a more normal hieratic hand, and, moreover, except in one case, the original writing was accessible and, but for one hopeless instance, undisguised by unsuitable treatment. Facsimiles of the famous Abbott Papyrus and of some others were published long ago, and Professor Peet has been content to give us hieroglyphic transcripts of all the documents in his volume of thirty-nine large plates, one plate being devoted to corrections of his readings of the Mayer papyri and another to a plan showing the correct relative positions of the fragments of two papyri in the British Museum.

The descriptions, translations, notes and index fill a substantial volume of text and are preceded by introductory discussions on the nature and date of the papyri, on the history and kings of the Twentieth Dynasty and their viziers, on the names and organization of the Theban Necropolis and on the criminal procedure. The examination of prisoners was carried out by questions accompanied by torture and oaths. Their condemnation or discharge was decided by the court, and the punishment of tomb-robbery was death either immediate or by impaling. Professor Peet has received substantial assistance from Professor A. H. Gardiner and from Dr. Černý, and there seems little to criticize in his masterly production. In the Abbott Papyrus translation however I would suggest, p. 38, l. 10, "and whose pyramid has been cast down on itself," i.e. "collapsed"; l. 12, Behek; l. 17, "Shuri" (?); p. 39, l. 10, *drtye* perhaps might mean "duly mourned over" by the two *drty*-goddesses; l. 12, for "dragging" read "breaking up"; l. 21, I do not quite like the rendering "prefect of No" (or better "of Ne"), i.e. of "Thebes," for the ancient title of the vizier: it should rather be the "prefect of the (royal) city," and so applicable to the vizier of Lower Egypt equally with him of Upper Egypt. These suggestions may all prove wrong in face of Professor Peet's profound knowledge of the whole subject, but on p. 54 and elsewhere "Nefertum" should certainly be corrected to "Nefertem." Scholars are indebted to Peet for carrying through this admirable and laborious task with such thoroughness amidst a crowd of pressing occupations.

F. LL. GRIFFITH.

The Epic of Gilgamesh. Text, Translation, and Notes. By R. CAMPBELL THOMPSON. Milford: Clarendon Press, Oxford, 1930. 50s. net.

In this splendid work the distinguished Assyriologist, Dr. Campbell Thompson, has given a new collation of all the Assyrian tablets in the British Museum which constitute the bulk of the text of the *Epic of Gilgamesh*; and the only regret is that he, with his expert eye and skilful hand, has been unable to collate anew the American fragments of the old Babylonian version, of which the readings are in many passages much disputed. Further, he has made no attempt to use the evidence afforded for the restoration of the text in various places by the Sumerian and Hittite versions—perhaps wisely, as this is often equivocal in the present state of our knowledge. What he has done is to make a fresh examination of all the Assyrian tablets and publish them in beautifully drawn plates, to which he has added all the variant readings; and this is accompanied by a complete transcription not only of these texts but also of those of the Old Babylonian version which have been discovered and edited up to date. In doing this he has joined up several fragments whose connexion has not hitherto been discovered and withal has made a composite text in what seems to him the correct order of the fragments; and here all will readily agree that he has greatly improved on the work of his predecessors. Further, at the beginning of the book there is an all too brief introduction entering into some of the problems which the Epic raises, and at the end a number of important notes, which also are all too few; and in these he not only discusses the usual philological problems, to whose solution he often contributes much, even though he is compelled still to leave many things unexplained, but also adds interesting information culled from his rich experience of daily life in the Semitic East—amongst which attention may be drawn to his interesting explanation of the method whereby Gilgamesh sank to the bottom of the sea by comparing it with the device employed by the pearl-fishers of Bahrain at the present time.

It is only with the utmost trepidation that the present reviewer, whose respect for Dr. Campbell Thompson's learning is very great, presumes to offer a few suggestions on his work.

P. 11, col. ii, l. 10: Ought [a]u-te-bu-u, which is an impossible (?) permansive form, to be [i]t-te-bu-u? P. 17, col. ii, l. 37: is not ip-ta-ra-as a-lak-ta [a *Gilgamesh*] the correct restoration (cf. pp. 23-24, col. v,

ll. 34-35) P. 31, col. ii, l. 32: if *kima BAR* (= *aḫi*) is the correct reading, the meaning is not "like a brother" (Sum. *ŠEŠ=aḫu* "brother") but "like a stranger" who requires to be led by the hand, i.e. guided. P. 45, col. iii, l. 33: is not *Šamaš iṣ-na a-na-[t]i pi-i-šu* the true reading, as *pišu* (!) *ipti* does not seem to occur at any rate in the Epic? P. 53, col. i, l. 10: is it possible that *a-ta-al(?) lu(?)* is a copyist's error for *a-ta-al(?) ku(?)*? P. 53, col. ii, l. 9: is also *a-ki* a copyist's error for *a-di*? P. 68, l. 6: as elsewhere, *pa-a-šu* must be read for *pa-a*. P. 83, n. on IX, 1-6: the possibility that *ZI-U(D)-SUD-RA* (cf. Ebeling, *K.A.R.I.*, 434 7) may be read at any rate in later texts (cf. Zimmern in *Z.D.M.G.*, LXXVIII, 21²) ought to be mentioned, as it explains the *r* in *Σωροειρος*.

Editorial and printing errors are commendably few, but mention may be made of the following: P. 17, col. ii, l. 41: if the explanation in the note is accepted, it is necessary to read *ug-tam-ma-ru* for *uk-tam-ma-ru* in the text. P. 53, col. i, l. 9: the second *š* in *Šamaš(i)* is printed upside down. P. 57, col. iii, l. 40: the translation rightly implies *a-na i-[di-ka]* for *a-na i-[di-šu]*. P. 76, n. on vi, 18: the transcription rightly has *ir-tu-ut* where the note has *ir-tu-tu*. P. 77, n. on v, 12: the accent has fallen out in *sand* for *šand*. P. 82, note on VII, iii, 27: in the second line of the quotation *ri-ik-ši-šu* ought to be *ri-ik-ši-šu*.

Attention is drawn to these few points in order that the editor may be enabled to correct them in a future edition. For it need hardly be said that the work is perhaps the best edition of an Assyro-Babylonian text in existence, and both the editor and the publishers are to be heartily congratulated on a magnificent publication fully commensurate with the great importance of the *Epic of Gilgamesh*.

G. R. DRIVER.

Aegyptiaca, a Catalogue of Egyptian Objects in the Aegean Area. By J. D. S. PENDLEBURY. Cambridge, 1930.

Mr. Pendlebury has given us a book of the type so necessary to the student—a collection of all the material bearing on a definite branch of archaeology. One of the many advantages of a complete study is that the lacunae become apparent. These Mr. Pendlebury notices for the reader, and they are sometimes nearly as suggestive as positive facts. Why is it, for instance, that Egyptian things are only found in eastern Crete and nothing in the western half of the island? And why, we may well ask, does western Crete scarcely seem to have been inhabited in Minoan-Mycenaean days? Why again is it that only a single Egyptian object has been found in all the well-excavated sites north of Hierapetra, which is almost the best Cretan port for the Egyptian trade? It lies on the south coast, well away in the eastern part of the island, but trade seems to have ignored it and to have made for the little Minoan port of Komò, near Phaestos and its group of ancient sites. These are at the great angle in the south coast of Crete. Was it that the early voyagers were guided by the great mountain mass forming this promontory, which may be seen from afar by the traveller from Alexandria or Port Said?

Anyhow, it was from here that the great Minoan road ran across the island to Knossos. This is the Cretan site that has produced not only the most evidence of connexion with Predynastic and Early Dynastic Egypt, but also the most continuous evidence right through to the end. Yet Knossos is on the north coast, far from Egypt.

That corner of the Aegean which has produced the greatest number of objects traded from Egypt is Rhodes. So great is the quantity of material that it is to have a special monograph devoted to it, amounting as it does to five times as many objects as have come from all the rest of the Aegean-Mycenaean world. This is an interesting corollary of Mr. Pendlebury's statement that the pottery from Egypt commonly called Late Minoan is really Late Helladic III. The sherds are pronounced to belong to a class that is common in Rhodes, and like those from the Argolid to the west and Cyprus to the east, but not like Cretan ware.

It is only rarely that Mr. Pendlebury digresses from his statement of fact into the realms of theory. It is an interesting suggestion of his that the Old Kingdom may have influenced the art of Aegina by means of that island's connexion with Saitic Egypt through Naucratis. But, on the other hand, it seems to be presupposing too much to suggest, as the author does, that the Achaeans destroyed Crete in order to open up the Egyptian trade for the men of the Mainland. Need we look so far afield for motives? The age was a disturbed one. Love of fighting and the presence of rich cities to plunder seem sufficient incentive. It is true the destruction of Crete did open up the Egyptian trade, but this may well have been an extra and quite fortuitous benefit accruing to the conquerors.

The Pharaohs whose names have been found in the Aegean are Khyan, Tuthmosis III, Amenophis II, Amenophis III and his queen Tiya, Menkheperre, and Psamtek I.

On p. 19 the author coins a term unknown to Egyptology—Third Intermediate Period. By this he means the Twentieth–Twenty-fifth Dynasties, commonly called the Late New Kingdom, the Late Period, or the Decadence.

The Egyptian objects that found their way across the water seem to be entirely small works of art. In the early ages beautiful hard stone vases were the favourites, and from the Eighteenth to the Twenty-sixth Dynasties alabaster vases of a baggy shape. The beautiful blue faience which was Egypt's speciality naturally figures largely, as do beads of various materials. By far the most common objects were the scarabs, in which one might almost think an export trade had grown up by the Twenty-sixth Dynasty. Only very rarely do we get a statuette human or divine, and it is interesting that Sparta should have added one more to the list of places that have produced mysterious *ushabti* figures. Those from Zimbabwe and Central Africa are specimens of the well-known forgeries that can be bought in the streets of Cairo for half a piastre apiece. The description of the Spartan one is reminiscent of them. The Rhone Valley has also produced forged *ushabtis*.

Mr. Pendlebury adds a valuable note on the Aegean pottery found in Egypt and a list of the finds with full references. He quite correctly speaks of Lahun in his text, but does not mark it on his map. He gives instead Kahun, which is only one portion of the great site at Lahun.

The author and his wife hope to prepare a companion volume to the present one. It is to be a "Minoica," recording the Aegean pottery found in Egypt. We look forward to this as well as the study of the Rhodian material.

G. A. WAINWRIGHT.

Ancient Egyptian Masonry: The Building Craft. By the late SOMERS CLARKE, F.S.A., late surveyor to the Dean and Chapter of St. Paul's Cathedral, and R. ENGELBACH, Assoc. C. & G. Inst., Keeper, Egyptian Museum, Cairo. (Oxford, 1930.)

The gap in Egyptological literature which Messrs. Somers Clarke and Engelbach set out to fill demanded in the authors of an adequate text-book a combination of precisely those qualifications which are implied in their descriptions quoted above. This being so, it might be supposed that alike for Egyptologists and architects interested in the history of building all that remained was to buy this volume of over 200 pages and nearer 300 illustrations, and put it on their shelves as a permanent work of reference. But it appears that the gap—unknown to most of us—was bigger than that; and it is a striking tribute not only to the modesty but also to the scientific manner of the authors' enquiry that they regard their book merely as Prolegomena, and are continually stressing the possibility and need of further research into available material, as well as the inevitable uncertainties due to lack of evidence. Indeed their caution would seem almost overdone at times were it not that the book is intended for a wide public, including students unused to the pragmatistical philosophy of the archaeologist. That the latter should in the ordinary commerce of his work and writings accept as facts much that he knows to be unproven theories is right so long as he represents them to the layman as no more than working hypotheses. Engelbach's theory of the method of erecting obelisks in ancient Egypt fits all the known facts and is now generally accepted by Egyptologists. But he is very careful to refer to it in this book as a possible solution of the problem.

It is a commonplace that many of the main characteristics of ancient Egyptian civilization remain unchanged from the earliest dynastic times down to the Roman period. Egyptian architecture was no exception to the rule; and the authors maintain that it had achieved its essential characteristics by the middle of the Old Kingdom; minor variations in treatment continued to arise throughout the succeeding dynasties, but there was no constructional change. The natural conservatism of the race was doubtless chiefly responsible for this fact, but a contributory and more interesting reason was the "nationalization" of the quarries from the earliest times.

In contrast with the long period of its full development—nearly 3000 years—the available material for a study of the origins and development of Egyptian architecture is confined to a relatively short period, within which the bulk of the evidence was produced in a single generation. The authors' sane treatment of the newly discovered buildings at Sakkarah is therefore all-important, and above all their detailed exposition of the inferiority of Zoser's masonry as compared with that of e.g. Khufu. The outstanding

feature of the Sakkārah work is its reliance on earlier techniques—mud-brick and wood and even wattle and daub, as witness the pillars. The great advance made in the Fourth Dynasty, logical enough, could only come about when the masons realized that the new medium required and was capable of a new interpretation, and ceased to measure their blocks in terms of bricks.

Following the introductory chapter on the earliest remains of Egyptian masonry, Clarke and Engelbach discuss every phase of the craft in detail, beginning with two chapters on quarrying—devoted to soft and hard rocks respectively. They have collected enough evidence, chiefly from the limestone galleries of Tura and Ma'sara, but also from Beni Hasan and the sandstone of Silsilah, to outline the method of extraction with considerable certainty, and are inclined to postulate the use of a pick, though refusing to insist on this. Their study of the quarrying of hard rocks is based partly on the monuments, but chiefly on Engelbach's work on the Aswān obelisk, the results of which are already familiar. They admit to many difficulties still outstanding, e.g. the nature and material of the pointed tool which was certainly used in working granite, schist, quartzite, etc.

The next stage was the transport of the stone from the quarry to the building site, and is treated in a short chapter on Egyptian barges. The suggestion that the great lighters such as that of Hatshepsut were "solid rafts made of tree trunks" will not be acceptable to naval architects, and in fact Mr. Charles Jarrett-Bell has recently shown that the Dér el-Bahrī relief is probably a very accurate representation of a craft based on sound if elementary mechanical knowledge. The authors, however, are not attempting a survey of Egyptian ships, and the most valuable result of this chapter is the fact, which they have established beyond reasonable doubt, that the Egyptians did not know or use the pulley, a conclusion which naturally claims instant consideration in any discussion of methods of handling and laying blocks and of construction.

The section on preparations before building includes a useful survey of the known examples of Egyptian scale-plans and architectural sketches, to which may be added an ostrakon published since this book (*Journal*, xvi, 237).

The mensuration and preparation of building sites is discussed, and the religious ceremonies connected with them. The authors seem inclined to doubt the witness of the monuments that the Pharaoh himself took part in this symbolical act, especially in Ptolemaic times. Such, however, is what we should expect rather than the reverse, from comparisons both with Mesopotamian practice at dates contemporary with dynastic Egypt, and that of many other peoples down to the present day. In this country the number of foundation stones laid by one or other of the present royal family may well surprise some archaeologist of the future.

The Egyptian habit of mixing bad work with good is strikingly exhibited in the poor quality of their foundations, which until comparatively late times were almost invariably inadequate for their task both in theory and in practice. This was due in part to ignorance—though experience should have corrected that—and in part no doubt to the glozing comfort of the interminable stucco, which (necessary as a ground decoration in so many cases) would give for a short time a faultless exterior to the worst construction. Even so it is incredible that the builders should have gone on for century after century erecting huge columns which were to take the weight of monolithic architraves on small irregular blocks of friable stone only a few feet deep. It is even more remarkable that so much has lasted.

Handling, dressing and laying of blocks are dealt with in two long and important chapters which more than any in the book testify to the quantity of data collected by the authors, and at the same time offer scope for the setting out of propositions which goes far beyond the mere observation of conditions. The absence (so far as one can tell) of wheeled transport before the New Kingdom is all the more surprising now that the chariot is known to have been so prominent a feature of early Sumerian civilization. But rollers seem certainly to have been used by the Egyptians with their (well authenticated) sleds, though the actual evidence for them is slight. The most notable re-adjustment of accepted views is entailed by the suggestion—for which a sound case is made out—that the so-called "rockers" (known to us from models in foundation deposits) are in reality small sleds used in aligning blocks of stones to be dressed. The whole question of the cutting, dressing, aligning and laying of the blocks and their courses is discussed with great insight and is too detailed for summary.

A cautious but constructive account of pyramid building dispatches most current ideas but does not claim to be final, since so much still remains to be done towards the thorough investigation even of the Ghazh pyramids. It has called forth from Petrie (*Ancient Egypt*, 1930, 33) a further discussion of the difficulties and a more positive solution than that of Clarke and Engelbach.

The remainder of the book deals with the elements of architecture, pavements and column-bases, columns and architraves, roofs (including methods of protection against rain, a wider field than might be expected), doors and doorways, windows, stairs and arches. The last chapter on the masonry discusses the final stages of facing, sculpturing and painting, and contains some important evidence for the methods of cutting hard stone based on personal experiments. Such practical tests are indeed frequently referred to throughout the book, models being used when an actual reconstruction of ancient methods was obviously out of the question. The authors rightly insist that often this is the only criterion by which to test their theories, and apply it whenever possible.

The last two chapters, giving short accounts of brickwork and Egyptian mathematics respectively, are essential adjuncts to the main theme. It might be noted that Petrie's view that panelled brickwork is derived from a wooden construction is borne out by the evidence of a similar development in early Mesopotamian building at Ur and Al-'Ubaid.

An appendix gives illustrations of most of the tools discussed in the text, of which in some cases only one or two examples are known.

Finally, one may recall the authors' warning, already noted, that this book is only an introduction. It is consequently not simply a book of reference—though that will naturally be its primary use for most readers—but contains valuable suggestions for further lines of investigation.

S. R. K. GLANVILLE

Zenon Papyri in the University of Michigan Collection. By C. C. EDGAR (*University of Michigan Studies, Humanistic Series*, xxiv). Pp. xiv+211, and 6 plates. \$ 3.50. 1931.

Of the voluminous correspondence of Zenon, one of the outstanding discoveries of recent years, appreciable portions have fallen to the Universities of Michigan and Columbia. The authorities of the former could not have done better than to entrust the publication of their share to the experienced editor of the Zenon papyri at Cairo. A very satisfactory and attractive book is the result. Mr. Edgar has taken the opportunity to give in his substantial introduction (pp. 1-60) a valuable sketch of the career of Zenon and of the powerful minister Apollonius, whose confidential agent Zenon was. He also discusses briefly the different systems of dating employed in the reigns of the second and third Ptolemies and adds useful tables of the correspondences between Macedonian and Egyptian months for the years 261-236 B.C. Of the 120 papyri which follow many are short or fragmentary, but there is a leaven of good pieces, and though none is of capital importance, points of interest are frequent. Historically the most significant is No. 100, if the Callicrates therein mentioned was the admiral of that name, whose tenure of office must consequently be extended. In connexion with the allusion to a bear in 66.5 it may be worth while to note that a skilful drawing of that (in Egypt) unexpected animal has lately been found among the Oxyrhynchus papyri. In 103 occurs one of the few early references to the use of camels in Egypt. The ostrich is not altogether a novelty in papyri, but in 9.2-3 we hear for the first time of an egg decorated with or mounted in silver, *ὡὸν στρούθειον διαγυρομένον*. In 112.5 *ἀπὸ χερὸς πορίζειν* is the antithesis of *ἀπὸ ποδός*, for which cf. e.g. P. Rylands 157.21. Facsimiles, paper and typography are alike excellent, and misprints commendably rare, though in several places brackets before or after complete words are not properly spaced. May the future volumes of the Michigan papyri follow this admirable model!

A. S. HUNT.

Papyri in the Princeton University Collections, edited by A. C. JOHNSON and H. B. VAN HOESSEN (*Johns Hopkins University Studies in Archaeology*, No. 10). Pp. xxiii+146. 1931.

Princeton is one of the American universities which have recently acquired a number of new papyri, and a small homogeneous group from Philadelphia in the Arsinoite nome has now been dealt with in a slender volume. This group consists of eleven papyri, three of them inscribed on both sides, belonging to the reign of Tiberius, and all, with the exception of No. 13, which is of a more miscellaneous character, containing official taxing-accounts, several of considerable length. Among the taxes concerned the *συντάξιμα* is prominent, but the purpose of that impost, a peculiarity of the Arsinoite nome, remains uncertain. If, as the editors maintain, it was not the poll-tax under another name, a payment by a man of 62 hardly disproves the accepted view that liability to poll-tax ceased at the age of 60 (p. 26). Since no facsimiles are given, the quality of the transcriptions cannot be tested, but they have evidently been made with care, and the editorial work generally is competent. The principles of abbreviation do not seem to have been fully grasped. *ρ* cannot be expanded (*ρ*)*ρ*(*ἀρεζα*) (9. iv. 9); and if, e.g., the *σ* of *Νέστρον* or the *τ* of *Ἡφαιστίδαο(ς)*

was really omitted in 13. vii. 2, xviii. 10, Νέ(σ)τον, etc. should be printed. A suspicion arises that indistinct formation has not seldom been mistaken for abbreviation. No. 13 in particular has given trouble. *αυτ()*, which occurs several times, probably means *ἐν τ(οῖς)*, as elsewhere, and in xviii. 32 'Αμύντ(α) can safely be added on the analogy of xix. 4 (cf. ii. 29). This suggests that local names follow *ἐν τ(οῖς)* also in ii. 1, 16: does δὲ Νωσίδ() conceal Διονυσίδ(α)? It is rather perverse in i. 1 to divide μετρ() into μετρ(απέξης) and then to suggest that με=με(τρημάραν) (p. 77). Is χόστ(ον) in iv. 1, 8 and in xviii. 5 ὑπ(έρ) ὀφθαλμ(ίου) look obvious. In 9. iii. 19 ζήτη (sic) is presumably ζητη(τέον). 11. ii. 6 περι Προλ(εμαίδος) Νέ(α) (so too 14. i. 9 περι Βουβαστο(ν)): at l. 1 περι Περαστω(ν), κόμην is to be supplied), 13. iii. 23 δι(ὰ) δλ(λων) explained on p. 100 as "for other expenses," xix. 1-7, n. Phanius (cf. Index, p. 140, Φάνιος), p. xvi Socnopaeou Nesus are some other details in which the editors have not been felicitous. Attention is repeatedly called in the notes to doubtful readings which have already been sufficiently indicated by dotted type. On the other hand doubt is sometimes expressed where dotted letters have not been used; and this is not the only inconsistency observable between text and commentary.

A. S. HUNT.

Das schöne Fest von Opet: Die Festzugdarstellung im grossen Säulengange des Tempels von Luxor.
VON WALTHER WOLF. Veröffentlichungen der Ernst von Sieglin-Expedition, Fünfter Band; Leipzig, 1931.

We have waited far too long for an accurate publication of the reliefs of the colonnade in the Luxor temple. The publication, however, now that it has come, is wholly adequate. The discussion of the age and history of the reliefs is complete, the two plates are clear and easy to handle, despite their length, the descriptions of the scenes and the copies and translations of the texts are excellent, and the photographic reproductions of the walls, the only thing missing, are to appear as a separately obtainable supplement to Wreszinski's *Atlas*.

The author follows Engelbach and Schäfer in rejecting Borchardt's hypothesis that what Amenophis III planned at Luxor was a hypostyle hall like that of Karnak, and that Tutankhamūn, by building the east and west walls, reduced it to the mere colonnade which now stands there. According to the author, who adds still more evidence to that adduced by Engelbach and Schäfer, the long walls were the work of Amenophis himself, who was also responsible for the reliefs on the north and south end-walls; Tutankhamūn merely added the reliefs on the long walls. He suggests, moreover, that although Tutankhamūn's reliefs are complete in themselves and have no need of those on the north wall, yet these last are of a general tenor which would enable them suitably to round off the festival procession; it is therefore possible, he thinks, that Amenophis, when he executed them, had in view for the long walls precisely the scenes which Tutankhamūn afterwards placed there—in which case we should have to regard the whole merely as a representation of a typical Opet festival and not, as is generally assumed, of a particular one performed by Tutankhamūn to mark his return to orthodoxy after the Aten heresy. The author's argument here (last para. of p. 2) is not altogether convincing, and it is a pity that he has not given us a reproduction of the reliefs on the north end-wall in order that we might form our own conclusions. The reviewer's own memory of these, based on a careful study in 1929, is that there is nothing in them to suggest that Amenophis contemplated using scenes from the Opet festival rather than any others to decorate the rest of the colonnade.

The description of the scenes is excellent, and calls for no comment. The inscriptions are carefully translated and the author's philological standard is clearly high. Two small points raise questions. First, in No. 26, is there any authority for translating *ἑδω* by "banks"? Secondly, in No. 32, a.1 *l-rs nf dl ἑδω* means not "damit sie bei ihm mit Leben beschenkt sei," where "bei ihm" is quite meaningless, but "that she may make for him an 'endowed with life'"—a characteristic Egyptian way of saying "that she may confer on him the quality of 'endowed with life,'" the epithet which every king writes after his name. The mortal performs a service—in this case the transport of the god on the Nile—in order not that the god may be endowed with life, for the gods need no human aid to give them this, but that the god may endow him with life. This is quite clear grammatically in cases like the present, where the deity is feminine and the dative *nf* is inserted. It is also clear in examples like No. 20a, where it is absurd to translate "Fumigation and libation to Amen-Rē that he may be endowed with life like Rē," for he is Rē; it is for the king that Amen-Rē is asked to make an "endowed with life like Rē." Such cases as these determine the correct translation of less obvious examples like No. 39b.

T. ERIC PEET.

Giza I. Bericht über die von der Akademie der Wissenschaften in Wien auf gemeinsame Kosten mit Dr. Wilhelm Pelizaeus unternommenen Grabungen auf dem Friedhof des Alten Reiches bei den Pyramiden von Giza. Band 1: Die Mastabas der IV. Dynastie auf dem Westfriedhof. In Verbindung mit K. HOLEY herausgegeben von HERMANN JUNKER. (Akad. d. Wiss. in Wien, Phil.-hist. Klasse, Denkschriften, 69. Band, 1. Abhandlung, Wien und Leipzig, 1929).

In 1902 the pyramid field of Giza was divided up by the Service des Antiquités into three concessions, allotted to American, German and Italian excavators respectively. In 1903 the withdrawal of the Italians from this field of work left their area to be added to that of the Americans under Dr. Reisner, and in 1911 the German concession was, by mutual agreement, handed over to the Akademie der Wissenschaften in Vienna. Anxiety has often been felt with regard to the ultimate publication of the vast excavations carried out here almost annually by the various concession-holders; for, though all have issued interim reports, there seemed little or no sign of final publications commensurate with the importance of the site and the magnitude of the work done. The present volume will do much to allay this anxiety. Dr. Junker tells us that it is but the first of a series which will deal with the work done by him and his colleagues in 1912-14 and from 1926 onward in the middle section of the western cemetery. The purpose of the publication, he tells us, is not only to secure a complete and reliable reproduction of the material, but to give a thorough treatment of all relevant questions of date, development, artistic value, etc.

These aims are all fully achieved in the present volume. Both in the more general sections and in the detailed descriptions of the various mastabas the arrangement is clear and the treatment adequate. The plans and sections of tombs are excellent, and the photographs reproduced in the plate by the half-tone process are of the highest quality. Dr. Junker's discussions of the inscriptions are such as might be expected from a scholar of his standing, and this part of the work is a mine of philological information, in which the reviewer has already more than once found pure gold.

Dr. Junker and Professor Karl Holey, who was responsible for the architectural side of the excavation, are to be congratulated on a work which is a model of what such reports should be. It is not their least merit to have shown that an excavation report of such intricacy and importance can perfectly well be brought within the limits of space and cost imposed by the format and style of the *Denkschriften* of the Vienna Academy. In these days, when the very existence of our science is being threatened by the expense and extravagance of its publications, this is a fine example to have set.

T. ERIC PEET.

Études sur les origines de la religion de l'Égypte. Par S. A. B. MERCER. (The Oriental Research Series.) London, Luzac, 1928. Pp. 105 + xi.

To say that Dr. Mercer's book is unsatisfactory would be to give a disproportionately critical impression of a work in the writing of which at all there is much to admire. The origins of Egyptian religion are, as yet at least, out of our reach, and any book which deals with them is bound to be unsatisfactory—the same impression is left by the conclusions on the same subject of so great an authority as Professor Sethe—but it is better that such books should be written to make us think, disagreement being a half-way house to thought, than that we should remain immersed in details because the time is not yet ripe for synthesis. It never will be, for that is merely a way of saying that we do not know everything.

I am inclined to think that the most pressing need of the study of Egyptian religion at present is a series of statements of what the Egyptians themselves said at different periods; work up to the present seems to have been concentrated on taking certain passages and explaining at great length what they ought to have said. If a series of works were published dealing with the periods of, say, The Pyramid Texts, The Coffin Texts, The Middle Kingdom, The Eighteenth Dynasty, The New Kingdom, and The Ptolemaic Period, then we should have a basis for study. Each work should confine itself rigidly to a statement of what we find written in the texts of that period, without any attempt to explain it from material of other dates. Such books would be of inestimable importance—we have a sketch for one in Dr. Allen's invaluable booklet on Horus in the Pyramid Texts—and we could then deal with the development of any given belief without being held up by the necessity of reading everything that the Egyptians ever wrote which might possibly contain something about it. Difficulties might arise in deciding the effective date of certain texts, but these could easily be surmounted by some such compromise as dealing with them at the date of our earliest copy and mentioning their possible range. Each author might be allowed the luxury of noting in a separate section those texts which he believed effectively to come within his purview. By this means the origins would be somewhat cleared and many problems which now puzzle us would not arise.

After this had been done the historical method, which is the only useful one in the long run, could be brought to bear on the separate gods. How much nonsense has been written concerning the Aten cult which could have been saved by an authoritative work on the written beliefs of the early Eighteenth Dynasty!

Some such reflections are inevitably aroused by Dr. Mercer's book. I felt in reading it that a great many of the things we are accustomed to take without question concerning the origins of the gods would vanish if a fresh study of them were made from those references only which are of early date and all preconceptions from later texts carefully put away. In particular this work has led me to reconsider my position with regard to Osiris, and elsewhere in this number of the *Journal* I have attempted to suggest a different origin for him from that which has held the field up to the present. Dr. Mercer maintains the conventional view with a few variations which will be noted later, and I was struck in particular with the disproportionate importance which we have been accustomed to give to the *dd*-pillar in relation to Osiris. Sethe long ago pointed out that it is equally if not more likely that the pillar was originally connected with Memphis, and later became attached to Osiris when he moved up thither. Since Dr. Mercer wrote, the publication of the second *Dramatische Texte* has shown that when the "Theological symbolists" had to deal with the *dd* as a cult object, so far from identifying it with Osiris, they identified it with Set, thus showing clearly that it was not closely connected with Osiris until after the enmity with Set had grown up, that is to say, comparatively late in Osiris' history. And the *dd*-pillar question is only one point where a reconsideration of our views in the light of *unassailably early* evidence would be of profit. It is not enough for individual Egyptologists to feel that they have already reconsidered them; as Dr. Gardiner pointed out in a review in this *Journal*, II, 121 ff., a great deal of harm has been done by the fact that investigators in the field of comparative religion in the Egyptian area cannot get reliable information about Egypt.

There follow some comments on points which occurred to me in the course of reading.

P. 24, l. 16. *Hor-khent-irte* is *Mhnt-n-irrt*, not "He who rules over the two eyes" but "He who is without eyes." (See Sethe, *Unters.*, x, 164.)

P. 24, l. 12. It seems rather an extreme statement that all falcon-gods were originally war-gods.

P. 24, l. 22. *hnti* can mean "in," and *hnti-ht* would be more probably "who is in the body."


P. 24, last line. Why need a mummified falcon be reminiscent of Arabia? In any case, see p. 8 of Sethe's since published *Urgeschichte*.

P. 26, l. 12. Why "Une accord politique temporaire"?

P. 29, last para. The derivation of *end-ti* is given somewhat dogmatically. The derivation from *end-t*, the name of the nome, is more attractive, and this may have something to do with *endw*, incense, as Newberry pointed out in this *Journal*, xv, 86 ff. Or does the name of the god come from the incense, the nome-name being a false construction from it?

P. 30, ll. 13 ff. I must confess complete failure to understand this passage. In any case, as pointed out above, Sethe has already shown that the connexion between Osiris and the *dd* is at least shaky. As for the suggestion that Pyr. 1751 shows it to be a tree with the branches lopped—it hardly seems conclusive.

P. 32, first para. It should have been pointed out here that in Pyr. 145-6, 251, 350, 1267, and 2105 Osiris is an enemy, while in 145-6 Horus is added.



P. 51, l. 7.  does not seem to be Horus; see *Wb. d. aeg. Spr.* and Allen, *Horus in the Pyramid Texts*.

P. 63, l. 17. *Št-s-htp*, not *htf*. Reference 7. Petrie, *Gizeh and Rifeh*, has eight plates numbered XIII, sub-lettered A-H. For Khnum, Lord of Shashetep, see XIII, G, and for Osiris, Lord of Shashetep, XIII, H. The correct reference for *Št*, Lord of Shashetep, is *Siut*, Pl. 18.

P. 72, ll. 3 ff. Kees, *Opfertanz*, 135, has pointed out that the figure on the wooden plaque is the king himself, not a god.

P. 72, l. 6. Reference for the "God on the Steps"?

P. 72, l. 16. No! *Rš* is the primary god of the celestial dead, Osiris is intruding and the process is not complete. The editing which consists in placing "Osiris" before the king's name is neither here nor there.

P. 72, l. 19. Read , and note that the early writing is , a somewhat important point.

P. 73, l. 9 from bottom. It is *Rš* who rules the sky. In Pyr. *Ur*. 337 Osiris is intrusive.

P. 74, first para. Surely the form of the Osirian editing of the Pyramid Texts shows a victory for Osiris, not merely assimilation to *Rš*.

P. 74, l. 19. This seems an unjustifiable play upon the French word "premier."

P. 76, l. 8. "Entrée d'Osiris dans la lune." Ref. Plut. 43. Transpose refs. 21 and 22 and date 21 to Ramesses IV.

P. 77, ref. 25. Delete III, 91, which does not mention Menes.

P. 78, l. 2. *Mn-nfr*. Taken in all probability from the pyramid of Pepi, *Mn nfr P.*, either "Firm and Good is P." or "The Good Monument of P." There is no word *mn* "port" in *Wb. d. aeg. Spr.*

P. 78, ll. 3 ff. The *dd*-pillar is referred to above.

P. 79, last para. The real point which lies behind all that the Egyptians felt about the relation of "good living" to the after-life was their lack of a sense of sin. The morality of the Instruction of Merikere and similar documents has, one feels, more in common with the static ethics of classic antiquity than with the dynamic morality of the Hebrew tradition. It was becoming a code of ethics and such is bound to end in a magical view of the way to a happy after-life. The spells for "passing the examination" in the other world are an essential expression of the Egyptian outlook on religion.

P. 79, n. 30. The comparison between the various Egyptian and African souls is an important one, and it seems a pity to have confined it to a footnote.

P. 80, l. 16. No! The king at the Sed Festival was Horus not Osiris. (See Kees, *Opfertanz* and Gardiner's review referred to above.)

P. 81, l. 1. Read Choiakh for Chorakh.

P. 85, l. 11. The *bmbn* can hardly be called a pillar.

P. 85, ll. 12 ff. and p. 89, ll. 7 ff. This reversal of the accepted view that Osiris gradually penetrated the Rer-cult, gathering his solar attributes on the way, is hardly convincing. We should expect to find more of Osiris as a solar deity at the beginning of the Pyramid Texts than at the end—which does not seem to be so. Further, what evidence is there for an early celestial Osiris? He was god of the dead in the Underworld.

P. 100, note 40. For \ominus read $\omin�$.

T. J. C. BALY.

Karanis: Topographical and Architectural Report of Excavations during the Seasons 1924-28. By A. E. R. BOAK and E. PETERSON. Pp. viii+69. With 42 plates, 19 plans, and 1 map. (*University of Michigan Studies, Humanistic Series*, vol. xxv.)

The University of Michigan Near East Research Expedition has been working at Karanis for the last seven years and steadily accumulating a store of information about the aspect and growth of a small Graeco-Egyptian town. Such a thorough investigation of a Fayyûm site has never been attempted before, and owing to the activities of the *sebak*-diggers may never again be possible. The Expedition has done a very great service to archaeology in undertaking this costly task and carrying it on year after year with exemplary care and patience. Though the excavators had no illusions about the nature of the work and no expectation of making any sensational finds, they have in fact come upon some very interesting papyri and other small objects, and one hopes that they will obtain many more before they leave the site; a rich reward of this kind would be well deserved.

The present volume contains a preliminary report about the house-remains in the upper strata of two areas of the town. None of the buildings described is earlier than the second century A.D. or later than the fifth, when the site was deserted. The descriptions, plans and plates give us a clear picture of the main features of the ordinary house of these times, the courtyard encumbered with ovens, hand-mills, pens for animals and other constructions, the vaulted granaries, the living rooms with decorated niches in the walls and over these, well above the level of the eye, the vertically barred windows (*θυρίδες κανοινταί*) with sloping sills. For the present the authors have wisely restricted themselves to a careful record of details. But future reports will no doubt tell us something about the earlier remains, and we may hope for more enlightenment about the street-plan and the various types of houses. At Philadelphia the original street-plan, which happens to be well preserved, is perfectly regular, and it would be interesting to learn whether Karanis, founded about the same time, was laid out on similar lines. But obviously the excavation of the latter town with its six more or less distinguishable levels of occupation is a much more complicated problem.

One of the more remarkable buildings described in the report is an immense dovecot containing several hundred nests, most of which were made of earthenware jars built horizontally into the walls. The large rectangular storehouse C 65, with a balcony supported on arches round the central court, is of great interest on account of its general plan, which is said to be unique at Karanis. It has also yielded, what

one would not have expected to find in such a place, a painted representation of Harpocrates and a Sphinx of the type discussed most recently by Perdrizet, *Terres cuites de la Collection Fouquet*, p. 79. A few other wall-paintings, equally crude, are reproduced in the plates and briefly described; but all such finds will be dealt with more fully in a later volume.

Altogether, an excellent account, published in a form which one can handle with comfort, of some of the results of a most instructive excavation.

C. C. EDGAR.

Two Fragmentary Birth-Certificates from the Michigan Collection, and Some Papyrus Fragments from the Michigan Collection. By HENRY A. SANDERS. (From *Memoirs of the American Academy in Rome*, IX, 1931.) With 4 plates.

In these two articles Professor Sanders does a real service to papyrology. The texts he edits are all imperfect, indeed seriously imperfect, but they are all in Latin, and Latin documents of the early centuries of our era are still, comparatively speaking, so rare that even the veriest scrap has a value. And all these fragments offer points of interest, which would in any case make their publication desirable. Their imperfection of course adds to the difficulty of decipherment, no easy task when one is dealing with Latin cursive, and Professor Sanders is to be congratulated on the skill with which he has performed his task.

As the title shows, the first two texts, which are both on waxed tablets, are birth-certificates. Imperfect as they are, they are a valuable addition to the existing material of this class, and Professor Sanders takes the opportunity to discuss some of the vexed questions raised by such tablets. The first, which is perhaps to be dated in A.D. 103, states the *census* of the father as HS XX, i.e. 20,000 sesterces. This is valuable, for it rules out the suggestion of the editor of *B.G.U.* 1694 that the insertion of the *census* in that document was due to the fact "dass M. Lucretius Octavianus dem Ritterstande angehört." The small sum concerned in the new tablet suggests on the contrary that the statement of the *census* was a regular feature of a birth-certificate; and Sanders's examination of the extant examples seems to bear this out. It elicits a further interesting fact, that in most, probably in all, cases the *census* figure was inserted later than the body of the text, the inference being apparently that the figures were not in the *tabulae professionum* but were obtained elsewhere.

The new tablet also contains the mysterious formula "q. p. f. c. r. e. ad k." The first part is known to represent *quae proximae fuerunt*; the second part was expanded by the editors of the Berlin tablets into the very unconvincing formula *crescentes ad Kalendas*. This was rejected by Sanders on the ground, *inter alia*, that in Mich. Pap. 766 the letters *c r e* are separated by dots. His scepticism is triumphantly vindicated by the new tablet, where also the dots appear (they are not really visible in the plate but Sanders states explicitly that they are distinguishable); but his own suggestion *civem Romanum exscripsi ad Kalendarium* is not convincing. He seeks indeed to vindicate, not perhaps the actual words (he suggests, e.g., *esse* or *exhibui* or *edidi* for *e*), but at least the sense against Wilcken's strictures (*Archiv*, IX, 101), but I confess myself unconvinced. Wilcken required *professus est* rather than any other verb, because these declarations of birth are called *professiones*; and though Sanders attempts to lessen the force of this, he cannot get over the fact that such certificates were always taken from the *tabula professionum*. He argues against Wilcken's interpretation of such formulae as "*tab. vi, item pagina ii*," or "*tab. ii et post alia pag. ii, item anno viii*," which he had himself interpreted as indicating a double registration; but again, in my opinion, unsuccessfully. Nor can I at all believe in his explanation (p. 69) of the phrase *amplioribus litteris*, which seems far-fetched in the extreme.

The second tablet is very imperfect and evidently hard to decipher, but by a comparison of the texts on the wax and on the wood Sanders restores it almost completely. His restoration of one phrase as *ap[ud meorum bonorum] curatorem* seems to me much less likely than Dittmann's *ap[sens per suorum bonorum] curatorem*, which he quotes in a footnote (p. 76) but rejects owing to the confusion of *p* and *b* involved. This does not seem a strong objection, and it is to be noted that in one of the papyrus texts (p. 85) we have the opposite confusion, *scripsi* for *scripsi*. The restoration *char]to* is also perhaps a little doubtful. Some interesting family connexions are established on pp. 78-9.

In the second article three Latin fragments on papyrus are published. The first, which consists of a list of names, followed each by an indication of place, and consulships, Sanders explains as a list of "a small detachment assigned to some special duty under a subordinate officer"; and since it has on the back an address which he reads *ἀπὸ τοῦ . . . πρὸς . . .*] x q d πὸ Ἀπλωνάριον ἀδελφ[οῦ] . . ., he takes Apionarius = Apollonarius as the officer, writing to a brother officer a letter now lost, to which a list of soldiers was appended.

But though it is no doubt possible that a Latin letter might have a Greek address, the Greek is at least unexpected. Moreover *Ἀπλανόπιον* is known (P. Oxy. 1676) as a woman's name. Is there any valid reason why we should not equally well read *ἀπλανή* (perhaps = wife), and (whether we read *-φοῦ* or *-φῆν*) take the Greek line as the address of a Greek letter, now lost, which was written on the verso of an official Latin document?

As to the character of the latter, it is hard to see why, if it is a list of a detachment sent on a particular service, it was necessary to specify the year of enlistment (it is to this that the consular dates presumably refer) or the *origo* of the individual men. It seems much likelier that (as Sanders himself suggests as an alternative, p. 83) the document is a list of soldiers, specifying the present locality. *Cast* I should read as *castris*, signifying that the men so described were in camp, while those whose names are followed by a place-name were on duty elsewhere. Dr. J. G. Milne points out to me that in l. 9, instead of Sanders's mysterious *Spent*, *Soene* is to be read; and in l. 25 I should prefer *Anti(noopoli)* to *Ante*, which Sanders explains as Antaeopolis.

The second piece is an interesting fragment of a receipt written on the classis Augusta at Caesarea, no doubt that in Mauretania. The third is a list of names, the purpose of which is obscure.

H. I. BELL.

LIST OF PLATES

	PAGE
A FRAGMENT OF A GREEK ILLUSTRATED PAPYRUS FROM ANTINOË.	
Plate I. Fragment of an Illustrated Greek Papyrus from Antinoë	<i>Frontispiece</i>
THREE ROYAL SHABTIS IN THE BRITISH MUSEUM.	
Plate II. Shabti-figure of Amosis I	10
Plate III. 1, 4. Shabti-figure of Amenophis II. 2, 3. Shabti-figure of Psamatik I or II	11
A "BEAKER" POT IN THE STOCKHOLM EGYPTIAN MUSEUM.	
Plate IV. 1. A Tasian Pot, now in Stockholm	22
HISTORICAL SCARABS OF TUTHMOSIS IV AND AMENOPHIS III.	
Plate IV. 2, 4. Marriage Scarab of Amenophis III. 3, 5. Historical Scarab of Tuthmosis IV	22
KEFTIU.	
Plate V. Map of Keftiu and adjacent Countries	43
A GREEK PAPYRUS CONCERNING THE SALE OF A SLAVE.	
Plate VI. A Greek Papyrus concerning the Sale of a Slave. Eitrem Collection, No. 7	44
OBJECTS BELONGING TO THE MEMPHITE HIGH-PRIEST PTAHMASE.	
Plate VII. Objects of Pthamase. 1. Pestle and Mortar of Breccia and model Knife of Limestone. 2. Alabaster Vase. 3. Scarab of White Jasper (?) set in Gold Ring. 4. Alabaster Head of a Ritual Staff	48
THE STELE OF THETHI, BRIT. MUS. NO. 614.	
Plate VIII. Stela of Thethi, Brit. Mus. No. 614	56
AN ARCHAIC STATUETTE FROM ABYDOS.	
Plate IX. Ivory Figure of a King from Abydos, Brit. Mus. No. 37996	65
A SMALL TEMPLE IN THE WESTERN DESERT.	
Plate X. Temple in the Western Desert. 1, 2. West End. 3. South-west Corner	82
AN ABBREVIATED DEMOTIC BOOK OF THE DEAD. A PALAEOGRAPHICAL STUDY OF PAPYRUS BRITISH MUSEUM 10072.	
Plate XI. Demotic Papyrus, Brit. Mus. No. 10072. Hieroglyphic Transcription, Original, and Ink Tracing on Photostat	88
AN UNUSUAL TYPE OF STATUETTE.	
Plate XII. Three Figure-stamps of the First Intermediate Period. 1-3. B.M. 59853, Bronze. 4-6. B.M. 30467, Ivory. 7-9. B.M. 54677, Ivory	98
A PROBLEM IN EGYPTIAN GEOMETRY.	
Plate XIII. Moscow Mathematical Papyrus. Problem No. 10	100

LIST OF PLATES

271

DR. H. R. HALL.	PAGE
Plate XIV. H. R. Hall	111
A PORTRAIT OF SMENKHKERE ^r (?) AND OTHER 'AMARNAH FRAGMENTS IN THE BRITISH MUSEUM.	
Plate XV. Reliefs in the Tell el-'Amarnah Style. Now in the British Museum . . .	165
PRIMITIVE METHODS OF MEASURING TIME, WITH SPECIAL REFERENCE TO EGYPT.	
Plate XVI. 1. End-block of a Rod Clock. Berlin Mus. 14573. 2, 3. Instrument for determining the Vertical. Berlin Mus. 14084. 4. Sighting Instrument (<i>merkhet</i>). Berlin Mus. 14085. 5. Rod Clock with Hour-markings. Berlin Mus. 19743	169
Plate XVII. 1. Priests observing on Temple Roof (after Science Mus., S. Kena). 2. Dial from Luxor. Berlin Mus. 20322. 3. Dial with Month-scales (after Petrie). 4. Shadow Clock. Univ. Coll., London (after Petrie)	171
Plate XVIII. 1. Time-measuring Device from Kûs. Science Mus., S. Kena. 2-4. Model Shadow Clock. Cairo Mus. 33401	172
Plate XIX. Clepsydra from Karnak	174
Plate XX. Clepsydra from Karnak	174
Plate XXI. 1. Model of Water Clock. Cairo Mus. 29895. 2. Interior of Karnak Clepsydra	174
Plate XXII. Clepsydra from Edfu. Cairo Museum. 1. Exterior. 2. Interior	176
EXCAVATIONS AT TELL EL-'AMARNAH, 1923-4. A. STATUARY.	
Plate XXIII. Statue of Akhenaten in painted Sandstone, from Tell el-'Amarnah . . .	179
Plate XXIV. Statue of Nofretête in painted Sandstone, from Tell el-'Amarnah . . .	181
Plate XXV. Statue of Nofretête in painted Sandstone, from Tell el-'Amarnah. To show Details of Construction	181
Plate XXVI. Fragments of Statuary from Tell el-'Amarnah	182
Plate XXVII. Fragments of Sculpture from Tell el-'Amarnah. 1. Pilasters from Backs of Statues. 2, 3. Unfinished Figure of a Slave. 4, 5. Inscribed Statue-base	183
EARLY BYZANTINE AND LATER GLASS LAMPS.	
Plate XXVIII. Vases used as Lamps	208
Plate XXIX. Vases used as Lamps	208
Plate XXX. Vases used as Lamps	208
A FRAGMENT FROM THE MUMMY WRAPPINGS OF TUTHMOSIS III.	
Plate XXXI. Inscribed Mummy Linen of Tuthmosis III	209
Plate XXXII. Inscribed Mummy Linen of Tuthmosis III	209
Plate XXXIII. Text from Mummy Linen of Tuthmosis III, with Variants. Lines A-D, and Columns 1-11	210
Plate XXXIV. Text from Mummy Linen of Tuthmosis III, with Variants. Columns 11-27 .	210
Plate XXXV. Text from Mummy Linen of Tuthmosis III, with Variants. Columns 27-38 .	210
Plate XXXVI. Text from Mummy Linen of Tuthmosis III, with Variants. Columns 39-50 .	210
CEREMONIAL GAMES OF THE NEW KINGDOM.	
Plate XXXVII. Scenes from Representations of Ceremonial Games	212
Plate XXXVIII. Texts from Representations of Ceremonial Games	213

	PAGE
EXCAVATIONS AT ARMANT, 1929-31.	
Plate XXXIX. Armant. General Plan	223
Plate XL. Armant. Cemeteries 100 and 600 and Cemetery 700-900	224
Plate XLI. Armant. Plans and Sections of Tombs. Cemeteries 200 and 400	225
Plate XLII. Armant. Positions of Bodies. Predynastic Beads, Grave 609. Alabaster Vessels	232
Plate XLIII. Armant. Pottery, predynastic to Middle Kingdom	232
Plate XLIV. Armant. Burial-jars, II-IV Dyn.	232
Plate XLV. Armant. Roman Pottery, Graves 203-401	232
Plate XLVI. Armant. Roman Pottery, Graves 405-527	232
Plate XLVII. Armant. Roman Pottery, Graves 528-753	232
Plate XLVIII. Armant. Roman Pottery, Graves 754-799	232
Plate XLIX. Armant. Roman Pottery, Graves 803-838	232
Plate L. Armant. Roman Pottery, Graves 842-918	232
Plate LI. Armant. Roman Pottery, Graves 909-955	232
Plate LII. Armant. Roman Pottery, Graves 941-942, and loose in Cemetery	232
Plate LIII. Armant. Roman Pottery, loose in Cemetery	232
Plate LIV. Armant. Miscellaneous Objects and Analysis of Tombs	232
Plate LV. Texts from Armant and British Museum Cartonnages	232
Plate LVI. Ptolemaic Cartonnage, 403 B	232
Plate LVII. Ptolemaic Cartonnages in the British Museum	232
Plate LVIII. 1. Type of Tomb in Cemetery 500. 2, 3. Terracotta Coffin, 771. 4. From Lid of Coffin, 403 B	232
Plate LIX. 1. Pottery from 909. 2. Alabasters from 766. 3. Flint Picks, 201. 4. Terracotta Figure, 799	232
Plate LX. Armant. 1. Bone and Bronze Pins. 2. Buchis Amulets	232
Plate LXI. Armant. 1. Objects from Cemetery 200. 2. Bull's Head in Limestone	232
Plate LXII. Armant. Objects of Metal	232
Plate LXIII. Armant. Tomb Groups. Cemetery 200	232
Plate LXIV. Armant. Tomb Groups. Cemetery 200	232
Plate LXV. Armant. Beads	232
Plate LXVI. Armant. Tomb-register	232
Plate LXVII. Armant. Tomb-register	232
PRELIMINARY REPORT OF EXCAVATIONS AT TELL EL-'AMARNAH 1930-1.	
Plate LXVIII. Tell el-'Amarnah. Plan of the North Suburb, west of West Road	233
Plate LXIX. Tell el-'Amarnah. Restored Plan of House T. 36. 36 and its Grounds	234
Plate LXX. Tell el-'Amarnah, House T. 36. 36 and Estate. 1. General View, looking south. 2. Bathroom, showing Plastering. 3. "Khan," from south-east. 4. Stairs, with Pier supporting Upper Flight	234

LIST OF PLATES

273

	PAGE
Plate LXXI. Tell el-'Amarnah.	
1. Stone Vase with central Division.	
2. Stone Latrine-seat.	
3. Pottery Hippopotamus.	
4. Leg of Pottery Tripod in the Form of a Human Face.	
5. Wooden Box-lid, with incised Design.	
6. Bronze Objects	235
Plate LXXII. Tell el-'Amarnah.	
1, 2. Reproductions of painted Plaster from the Wall.	
3, 4. Head in painted Limestone.	
5, 6. Glazed Limestone Brick in two Shades of Blue	236
Plate LXXIII. Tell el-'Amarnah, House T. 36, 63.	
1. Gold Ingots, with Sovereign and inch-cm. Scale.	
2. Silver Figure, with Gold Cap, of a Hittite God.	
3. Silver found with the Gold.	
4. The opened Crock, showing Gold, Silver and Figure	236
Plate LXXIV. Tell el-'Amarnah. Restored Plan of House of Hatiay, T. 34. 1 and 4.	237
Plate LXXV. Tell el-'Amarnah, House T. 34. 1.	
1. Lintel between North Loggia and Central Room, as found.	
2. The same Lintel, restored.	
3. Doorway leading from Corridor to Master's Room.	
4. Painted Altars in the Chapel	238
Plate LXXVI. Tell el-'Amarnah, House U. 25. 7	240
Plate LXXVII. Tell el-'Amarnah, House U. 25. 7.	
1. Entrance, seen from Passage, to Servants' Quarters.	
2. View from West Loggia through Central Room.	
3. North Loggia.	
4. Chapel from east	241
Plate LXXVIII. Tell el-'Amarnah.	
1. False Door to north of Central Gate.	
2. Central Gate and False Doors, looking west.	
3. Painted Plaster, <i>in situ</i> .	
4. Interior of Wall, south of Gateway, looking north	242

LIST OF ILLUSTRATIONS IN THE TEXT

	PAGE
THREE ROYAL SHABTIS IN THE BRITISH MUSEUM.	
Uraeus of shabti of Amenophis II	10
Uraeus of shabti of Psamatik I or II	10
Uraeus of shabti of Ahmose I	10
Inscription on shabti of Ahmose I	11
Inscription on shabti of Amenophis II	11
Inscription on shabti of Psamatik I or II	12
HISTORICAL SCARABS OF TUTHMOSIS IV AND AMENOPHIS III.	
Inscription on base of scarab of Tuthmosis IV	23
REED-FLOATS IN MODERN EGYPT.	
Reed-float used on the Nile	53
AN ARCHAIC STATUETTE FROM ABYDOS.	
Ivory figure of a king	65
NÂR-BA-THAI.	
Sign representing asymmetrical chisel	67
Wedge of ivory	68
Asymmetrical chisel	68
Symmetrical chisel	68
Nâr-Ba-Thai smites the Libyans	74
A SMALL TEMPLE IN THE WESTERN DESERT.	
Map showing position of El-Dab'a, etc.	81
AN UNUSUAL TYPE OF STATUETTE.	
Stamp-seal in bronze (copper ?)	98
Stamp-seals in ivory	98
PRIMITIVE METHODS OF MEASURING TIME, WITH SPECIAL REFERENCE TO EGYPT.	
Diagram of Kepler's Law of Equal Areas	167
Diagram of Equation of Time Curve	167
Egyptian star map (after Lepsius)	169
King and goddess in foundation ceremony	170
Equinox line and curves for summer and winter solstices	170
Shadow clock	171
Diagram showing errors in calculating hour intervals	171
"Inclined-plane" type of shadow clock	171
Shadow clocks with scales for various months	172
Fragment of papyrus from Tanis (after Griffith-Petrie)	172
Hieroglyphic signs representing shadow clocks	172
Limestone model of shadow clock	173
Ivory sundial (after Macalister)	173
Diagram showing inaccuracies of dial	173

	PAGE
Sundial from the Stabian Baths at Pompeii (after Singer and the Clarendon Press)	174
Details and diagram of error of the Karnak clock	175
Diagram of curves and lines of the Edfu water clock	176
Clepsydra of Ctesibius	177
Seventeenth-century clepsydra	177
THE EMBLEM OF MIN.	
Two falcons representing Koptos nome	187
Thunderbolt on coins of Seleucia Pieria	188
Omphalos in a temple on coins of Seleucia Pieria	188
Napata omphalos	190
Hierakonpolis omphalos	190
Statuette of Zeus from Dodona	195
EXCAVATIONS AT ARMANT, 1929-31.	
Inscription on Sekhmet figure	230
Inscriptions on pots in Greek and Demotic	231, 232
PRELIMINARY REPORT OF EXCAVATIONS AT TELL EL-'AMARNAH, 1930-1.	
Vaulted cellarette with arched entrance	244

NOTICES OF RECENT PUBLICATIONS

	Reviewed by	PAGE
Von ägyptischer Kunst: Eine Grundlage. Heinrich Schäfer	T. Eric Peet	147-150
Die Leistung der ägyptischen Kunst. Heinrich Schäfer	T. Eric Peet	147-150
Ägyptische und heutige Kunst und Weltgebäude der alten Ägypter: Zwei Aufsätze. Heinrich Schäfer	T. Eric Peet	147-150
The Papyrus Ebers. Translated from the German Version by Cyril P. Bryan	T. Eric Peet	150-151
Amun und die Acht Urgötter von Hermopolis, eine Untersuchung über Ursprung und Wesen des ägyptischen Götterkönigs. Kurt Sethe	G. A. Wainwright	151-152
Der Eid im ptolemäischen Recht. Erwin Seidl	H. I. Bell	152-153
The Vocabulary of the Greek Testament: Illustrated from the Papyri and other Non-Literary Sources. James Hope Moulton and George Milligan	H. I. Bell	153
Mathematischer Papyrus des Staatlichen Museums der Schönen Künste in Moskau. W. W. Struve	T. Eric Peet	154-160
Upon Slavery in Ptolemaic Egypt. William Linn Westermann	C. C. Edgar	160-161
The Difnar (Antiphonarium) of the Coptic Church. Part III. De Laey O'Leary	O. H. E. Burmester	161-162
Bases, méthodes et résultats de la chronologie égyptienne. Compléments. Raymond Weill	R. O. Faulkner	162-163
Memphis. À l'ombre des pyramides. Jean Capart and Marcelle Werbrouck	R. O. Faulkner	163
Memoir of Thomas Joseph Pettigrew, F.R.C.S., F.R.S., F.S.A. (1791-1865). Warren R. Dawson	F. Ll. Griffith	258
The Great Tomb-Robberies of the Twentieth Egyptian Dynasty	F. Ll. Griffith	258-259
The Epic of Gilgamesh. R. Campbell Thompson	G. R. Driver	259-260
Aegyptiaca, a Catalogue of Egyptian Objects in the Aegean Area. J. D. S. Pendlebury	G. A. Wainwright	260-261
Ancient Egyptian Masonry: The Building Craft. Somers Clarke and R. Engelbach	S. R. K. Glanville	261-263
Zenon Papyri in the University of Michigan Collection. C. C. Edgar	A. S. Hunt	263
Papyri in the Princeton University Collections. A. C. Johnson and H. B. van Hoesen	A. S. Hunt	263-264
Das schöne Fest von Opet: Die Festzugdarstellung im grossen Säulengange des Tempels von Luksor. Walther Wolf	T. Eric Peet	264
Giza I. Bericht über die von der Akademie der Wissenschaften in Wien auf gemeinsame Kosten mit Dr. Wilhelm Pelizaeus unternommenen Grabungen auf dem Friedhof des Alten Reiches bei den Pyramiden von Giza. Band I: Die Mastabas der IV. Dynastie auf dem Westfriedhof. K. Holey and Hermann Junker	T. Eric Peet	265
Études sur les origines de la religion de l'Égypte. S. A. B. Mercer	T. J. C. Baly	265-267
Karanis: Topographical and Architectural Report of Excavations during the Seasons 1924-28. A. E. R. Boak and E. Peterson	C. C. Edgar	267-268
The Fragmentary Birth-Certificates from the Michigan Collection, and Some Papyrus Fragments from the Michigan Collection. Henry A. Sanders	H. I. Bell	268-269

INDEX

A

- Abbreviated Demotic Book of the Dead, N. J. REICH, 85-97.
 Abydos, Archaic Statuette from, cleaned and re-published, 65-6.
 Survey Work at, 144
 Achish, equivalent of Keftiu name, 35, 38, 40.
 Adana, Hittite Adania, 36.
 Additions to the Hieroglyphic Fount, 245.
 Ahmediya Mosque, lamps in, 202.
 Ahmose, daughter of Sekenenrê, tomb of, 109.
 Ahmose Tumerisi, tomb of, 109.
 Akhenaten, 24, 165, 242, 243.
 statue of, 179-80.
 daughters of, 183-4.
 Akhmim, 3, 8, 185, 191, 194, 195.
 Alexandria, Roman, chariot-racing in, 6.
 state of learning in, 7.
 art in, 8, 9.
 street-names in, 45, 46.
 climate of, 83.
 Al-'Ubaid, Hall at, 112.
 Amenemhat II, 187.
 Amenemheb, Keftiuans in tomb of, 26.
 Amenemhet, tomb of, 175.
 Amenhotpe I, tomb of, 107, 108, 109.
 Amenophis II, shabti of, 10-11.
 Amenophis III, 25, 48, 236, 257.
 American Institute for Persian Art and Archaeology, 256.
 Amosis I, shabti of, 10; 175.
 Amphiloehus, 30.
 Anderson, Major Gayer, 22.
 Anemurium, 33.
 Ankhsempaaten, 183, 236, 243.
 Annual Exhibition, 1931, 254.
 Antinoë, Greek illustrated papyrus from, 1-9.
 circus in, 7.
 Apollo, associated with Horus and Min, 191-2.
 Apollonios, 45.
 Archaic Statuette from Abydos, S. R. K. GLANVILLE, 65-6.
 Armant, excavations at, 143, 223-32, 254.
 Arsinoë Philadelphus, streets named from, 45.
 Artanada, 33.
 Arzawa, 27, 28, 29.
 area defined, 29, 36.
 Ashkelon, name compared to a "name of Keftiu," 37-8.
 Aten, the, worshipped by Tuthmosis IV, 23-4.
 Athletic scenes in tomb of Merire II, 211, 220.

B

- Ba-Ta, story of, 72-8, 221.
 Ba-Thai, equated to Ba-Ta, 70, 78.
 Bahr Yûsef, reed-floats still used in, 53, 54.
 BALY, T. J. COLIN, A Note on the Origin of Osiris, 221-2.
 review by, 265-7.
 Journ. of Egypt. Arch. xvii.

- BAYNES, N. H. with J. G. MILNE. Bibliography: Graeco-Roman Egypt. A. Papyri (1929-30):
 4. Political History, Biography, Administration, Topography and Chronology, 128-9.
 5. Social Life, Education, Art, Economic History, Numismatics and Metrology, 129-30.
 "Beaker" Pot in the Stockholm Egyptian Museum, A. PEHR LUGN, 22.
 BELL, H. L., Bibliography: Graeco-Roman Egypt. A. Papyri (1929-30):
 3. Publications of non-literary texts, 124-7.
 9. General Works, Bibliography, General notes on Papyrus Texts, 141.
 10. Miscellaneous and Personal, 141-2.
 reviews by, 152-3, 268-9.
 Bennett, C. J., 233.
 Bethshan, lamp at, 203.
 Bibliography: Christian Egypt (1930-31), DE LACY O'LEARY, 248-53.
 1. Biblical, 248.
 2. Apocryphal, Gnostic, etc., 248-9.
 3. Liturgical, 249.
 4. Literature, 249.
 5. Church History, 250-1.
 6. Non-Literary Texts, 251-2.
 7. Philology, 252.
 8. Archaeology, 252-3.
 Bibliography: Graeco-Roman Egypt. A. Papyri (1929-30), various authors, 118-42.
 BLACKMAN, AYLWARD M., The Stèle of Thethi, 55-61.
 Bndbr, a "name of Keftiu," Cilician equivalents of, 31-3.
 BOAK, A. E. R. and E. PETERSON, *Karanis: Topographical and Architectural Report of Excavations during the Seasons 1924-8* (reviewed), 267-8.
 Boghaz-Keni, tablets from, 28, 29.
 Breasted, Professor, 53, 55, 58, 61, 107-8, 168.
 Broome, Miss M. F., 53, 144.
 Brunton, Guy, 22, 223, 254.
 BRYAN, CYRIL P., *The Papyrus Ebers* (reviewed), 150-1.
 Bubastis, 79.
 Buchanan, A. G., 223.
 Bucheum, 224, 225, 226.
 missing stelae from, 255.
 Buchis, spelling of, 228.
 Budge, Sir E. A. Wallis, publication of shabtis by, 10, 11, 12; 55; 112; 145.
 BURMESTER, O. H. E., review by, 161-2.
 Byblos, 28.
 Byzantium, chariot-racing in, 4, 5.

C

- Cairo, reed-floats used near, 53.
 relief at, 66.
 Calverley, Miss, 144.
 Calycadnus R., 28, 31, 32, 33, 34, 35, 39.

CAPART, JEAN and WERBROUCK, MARCELLE, *Memphis. A l'ombre des pyramides* (reviewed), 163.

Caphtor not Crete, 26, 41.

Cappadocia, 41.

"Cedar"-Tree Products employed in Mummification, A. LUCAS, 13-21.

Ceremonial Games of the New Kingdom, JOHN A. WILSON, 211-20.

Chariot-racing in Egypt, 6, 7.

Chubb, Miss M., 233, 254.

Cilicia, Keftiu, 26, 28, 29, 31.
iron in, 41.

Cilicia Tracheia, 28, 29, 31, 32, 33, 42, 43.

Cilicians in the Troad, 35-6, 41.

CLARKE, SOMERS and ENGELBACH, R., *Ancient Egyptian Masonry: The Building Craft* (reviewed), 261-3.

Corycian Cave, 31, 32, 33, 34.

Cowley, Dr., 256.

Crete, 26, 35, 236.

Crookenden, Miss M. I., 225.

CROWFOOT, GRACE M. and D. B. HARDEN, *Early Byzantine and Later Glass Lamps*, 196-208.

Ctesibius, clepsydra constructed by, 177.

Cyprus, relations with Cilicia, 28, 30.

D

Darius III, 96.

DAWSON, WARREN R., *Memoir of Thomas Joseph Pettigrew, F.R.C.S., F.R.S., F.S.A.* (1791-1865) (reviewed), 258.

Delphi, labrys at, 191, 192-3.

Dér el-Bahrî, Royal Cache of, 108, 110, 209.

DICKER, Miss M. E., *Bibliography: Graeco-Roman Egypt. A. Papyri* (1929-30):
7. Palaeography and Diplomatic, 140.

Diodorus on mummification, 13, 16.

Dirâ' Abu 'n-Nagâ, 55, 108, 110.

Djekhonssefankh, 108-9.

DRIVER, G. R., review by, 259-60.

DUNHAM, DOWS, *A Fragment from the Mummy Wrappings of Tuthmosis III*, 209-10.

E

Early Byzantine and Later Glass Lamps. GRACE M. CROWFOOT and D. B. HARDEN, 196-208.

Edfu, "beaker" pot acquired at, 22.
water-clock from, 176.

EDGAR, C. C., *Zenon Papyri in the University of Michigan Collection* (reviewed), 263.
reviews by, 160-1, 267-8.

Eetion, king of the Cilicians, 41.

EITREM, S., *Greek Papyrus concerning the Sale of a Slave*, 44-7.

El-'Amarnah, excavations at, 143-4, 179-84; 165.

El-Dab'a, 81.

Elephantine, 56, 58.

ENGELBACH, R. with SOMERS CLARKE, *Ancient Egyptian Masonry: The Building Craft* (reviewed), 261-3.

Ennana, scribe, 71, 72.

Eserashe, common Egyptian name, 96.

Eshenler Baghlari, 33.

Et-Till, inscribed plinth from, 183.

Evans, Sir Arthur, 112, 113, 114.

Excavations at Armant, 1929-31. O. H. MYERS and H. W. FAIRMAN, 223-32.

Excavations at Tell el-'Amarnah, 1923-4. A. Statuary. F. L. GRIFFITH, 179-84.

F

FAIRMAN, H. W. with O. H. MYERS, *Excavations at Armant, 1929-31*, 223-32.

FAULKNER, R. O., reviews by, 162-3.

Fayyûm, 3, 76, 77, 78, 197.

Firth, Cecil M., 255.

Florence, fragment of illustration in, 8.

objects of Ptahmase in, 49.

Fragment of a Greek Illustrated Papyrus, A. S. J. GASIOWSKI, 1-9.

Fragment from the Mummy Wrappings of Tuthmosis III, DOWS DUNHAM, 209-10.

Frankfort, Dr. H., 179, 233, 243.

G

Gabra, S., 62.

Gallienus, letter from emperor, 7.

GASIOWSKI, S. J., *Fragment of a Greek Illustrated Papyrus from Antinoë*, 1-9.

Gematen, 257.

Geneva, sundial at, 167.

Gezer, sundial from, 173.

lamp from, 201.

GLANVILLE, S. R. K., *An Archaic Statuette from Abydos*, 65-6.

An Unusual Type of Statuette, 98-9.

review by, 261-3.

Gordion in Phrygia, 40, 41.

Graeco-Roman pottery in Egypt, proposed corpus of, 254.

Greek Papyrus concerning the Sale of a Slave, S. EITREM, 44-7.

Green, F. W., *Director at Armant*, 223, 227.

GRIFFITH, F. L., *Excavations at Tell el-'Amarnah, 1923-4*, A. Statuary, 179-84.

report from Kawa, 257.

reviews by, 258-9.

Gurgume equated with Gorgorome, 42.

H

HALL, H. R., *Three Royal Shabtis in the British Museum*, 10-12.

Objects belonging to the Memphite High-Priest Ptahmase, 48-9.

A Portrait of Smenkhkare(?) and other 'Amarnah Fragments in the British Museum, 165.

Obituary notice of, 111-16, 144.

Proposed presentation commemorative of, 256.
23, 27, 85, 145.

HARDEN, D. B. with GRACE M. CROWFOOT, *Early Byzantine and Later Glass Lamps*, 196-208.

Hatiay's house at El-'Amarnah, 237-9.

Hatshepsut, first tomb of Queen, 109.

Hebron, types of lamp at, 204.

Hecatompylos, 256.

Hermionthis, 45.

Herodotus on mummification, 13, 15, 61.

Hieraconpolis, 67, 68, 69, 79, 185, 190.

Hill, Dr. G. F., 145.

Historical Scarabs of Tuthmosis IV and Amenophis III, ALAN W. SHORTER, 23-5.

- Hittite god from El-'Amarnah, 236.
 HOESEN, H. B. VAN with A. C. JOHNSON, *Papyri in the Princeton University Collections* (reviewed), 263-4.
 HOLEY, K. with HERMANN JUNKER, *Giza I. Band 1. Die Mastabas der IV Dynastie auf dem Westfriedhof* (reviewed), 265.
 Horion, trumpeter, 7.
 HORNBLOWER, G. D., Reed-floats in Modern Egypt, 53-4.
 note on an inscribed figure, 145.
 Horus, close connexion with Min, 190.
 Hubbard, Mrs., 243.
 HUNT, A. S., note on inscription, 231-2.
 reviews by, 263-4.

I

- Iconium, 39, 43.
 Ikusu, king of Ekron, 35, 42.
 India, methods of measuring time in, 177.
 Inhapi, Tomb of Queen, H. E. WINLOCK, 107-10.
 Intef I, 56, 57, 59, 61.
 Intef II, 55, 57.
 Isaura, 35, 37, 42.
 Isauria, 30, 34, 35, 38, 42.

J

- Jackson, Dr. Wilfrid, 254.
 Jaipur, observatory at, 170.
 Jarrett-Bell, Charles, lecture by, 144.
 Jerash, glass vessels from, 196, 198, 199, 207.
 John of Nikion, 6.
 JOHNSON, A. C. and H. B. VAN HOESEN, *Papyri in the Princeton University Collections* (reviewed), 263-4.
 JUNKER, HERMANN and K. HOLEY, *Giza I. Band 1. Die Mastabas der IV Dynastie auf dem Westfriedhof* (reviewed), 265.

K

- Kanytelideis, 34.
 Karnis (Kôm Aushim), glass lamps from, 196 ff.
 Karnak, stele of Thethi found at, 55.
 water-clock from, 174-5.
 inscription from, 211.
 Karoy, 23.
 Kassaba, 33.
 Kattara, 61.
 Kawit, Princess, 56.
 Keftiu, G. A. WAINWRIGHT, 26-43.
 Kelenderis, modern Chelindreh, 28, 29.
 Kenyon, Sir Frederick, retirement of, 145.
 King, L. W., 114-15.
 Kinyras, 28.
 Kizuwadna, iron industry in, 41.
 Klebs, Frau Luise, 255-6.
 Koptos, 186, 187, 190.
 Kurnah, stele of Thethi found at, 55.
 Kûs, time-teller from, 171.

L

- LAST, HUGH, Dr. H. R. Hall, 111-16.
 Leake, 28.
 Lester, R. N., 223, 254.
 Letopolis, 190.

- Leyden, objects of Ptahmase at, 49.
 Limyris, 33.
 Lloyd, Mr. Seton, 233, 236, 238, 239.
 note by, 243-4.
 LOURIE, L., A Note on Egyptian Law-Courts, 62-4.
 LUCAS, A., "Cedar"-Tree Products employed in Mummification, 13-21.
 LUON, PERH, "Beaker" Pot in the Stockholm Egyptian Museum, 22.
 Luia, part of Arzawa, 29.
 Lutipris, king of Urartu, Keftiuan name, 32, 39, 40.
 Luxor, sundial from, 173.
 Luxor temple, choruses of jubilation from, 211.
 Lybia, source of a sacred tree, 76, 80.
 Lycaonia, 30, 33, 34.
 Lycia, 14, 29, 31.
 Lydia, 27, 30.

M

- Mahu, tomb of, 243.
 Malâtia, 31, 33, 39, 42.
 Mallos, 30, 43.
 Marash, 31, 42.
 Marmarica, 81.
 May, tomb of, 243.
 MCKENZIE, R., Bibliography: Graeco-Roman Egypt. A. Papyri (1929-30):
 8. Lexicography and Grammar, 141.
 Medinet Habu, athletic scenes from, 211, 212; 214
 Mekt-aten, 183.
 Memphis, 48, 168.
 Mena, 70, 72.
 Mendes, sacred fish of, 72, 74, 79, 222.
 Menkheperresenb, paintings in tomb-chapel, 26, 113.
 Men-kheperu-rêf, 24.
 Mentuhotep I, 187.
 Mentuhotep II, 187.
 MERCER, S. A. B., *Études sur les origines de la religion de l'Égypte* (reviewed), 265-7.
 Meresankh, Queen, tomb of, 229.
 Merit-aten, 183-4.
 Meryet-Amun, tomb of, 109.
 Midgley, T., 223.
 MILNE, H. J. M., Bibliography: Graeco-Roman Egypt. A. Papyri (1929-30):
 1. Literary Texts, 118-20.
 MILNE, J. G. with N. H. BAYNES, Bibliography: Graeco-Roman Egypt. A. Papyri (1929-30):
 4. Political History, Biography, Administration, Topography and Chronology, 128-9.
 5. Social Life, Education, Art, Economic History, Numismatics and Metrology, 129-30.
 Min, The Emblem of, G. A. WAINWRIGHT, 185-95.
 Mnases, 30.
 Mohammed Ali, 53, 54.
 Mond, Dr. Robert, 223.
 Mopsucrene, 30.
 Mopsuestia, 30.
 Mopsus, 30.
 Moscow Mathematical Papyrus, No. 14, THOMAS W. R., 50-2.
 MOULTON, JAMES HOPE and MILLIGAN, GEORGE, *The Vocabulary of the Greek Testament: Illustrated from the Papyri and other Non-Literary Sources* (reviewed), 153.
 Murad-Su, 39.

- MURRAY, G. W., Small Temple in the Western Desert, A, 81-4.
 Murray, Miss, 144.
 Mush, Plain of, 39.
 Mycenae, 40, 41.
 Mycenaean resident at El-'Amarnah, 235.
 MYERS, O. H. and FAIRMAN, H. W., Excavations at Armant, 1929-31, 223-232.

N

- Naharin, 23.
 Napata, 190.
 Nar-Ba, true reading of Nar-Mer, 70.
 NAR-Ba-Thai, V. VIKENTIEV, 67-80.
 Nar-mer, revision of reading, 67, 70; 185.
 Nash, Rev. G. D., 23.
 Nefermaat, 191.
 Nefer-nefru-Aten tsheere, 183-4.
 Nefertiti, see Nofretète.
 Neferurêf, 110.
 Nesikhonsu, burial of, 108.
 Nesupkshuti, 109.
 Newberry, Professor P. E., 49, 185, 222.
 Nock, A. D., Bibliography, Graeco-Roman Egypt.
 A. Papyri (1929-30):
 2. Religion, Magic, Astrology, 120-4.
 Nofretète, statue of, 179, 180-1.
 defacement of name of, 183, 243.
 Note on Egyptian Law-Courts, A. I. LOURIE, 62-4.
 Note on the Origin of Osiris, T. J. C. BALY, 221-2.
 Ngy, "name of Keftiu," Cilician equivalents, 33.
 Nubia, reed-floats still used in, 53.

O

- Olba, 32, 36.
 O'LEARY, DE LACY, *The Difnar (Antiphonarium) of the Coptic Church. Part III* (reviewed), 161-2.
 Bibliography: Christian Egypt, 248-53.
 Ophel, 201, 204, 208.
 Orientalists, XVIIIth International Congress of, 256.
 Orléansville, pharacanthara from, 202.
 Oxyrhynchus, allusions to chariot-racing in papyri from, 6, 7; 45, 75, 175.

P

- Palaikastro, ivory figures from, 98.
 Palu, 39.
 Panopolis, nome of, 185, 187.
 Paphos in Cyprus, 28, 30.
 Patroclus, 4, 5.
 Paul the Silentiary, his evidence for lamps, 200-1, 207.
 Paynudjem II, 108, 109.
 PEET, T. ERIC, Problem in Egyptian Geometry, A, 100-6.
 reviews by, 147-51, 154-60, 264-5.
The Great Tomb-Robberies of the Twentieth Egyptian Dynasty (reviewed), 258-9.
 26, 31.
 PENDLEBURY, J. D. S., Preliminary Report of Excavations at Tell el-'Amarnah, 1930-1, 233-44;
 additional note, 255.
Aegyptiaca, a Catalogue of Egyptian Objects in the Aegean Area (reviewed), 260-1.
 27, 98.
 Pepi II, 98, 187, 188.
 Persepolis, restoration of, 256.
 Persia, work of American Institute in, 256.

- Pesibkhenno II, 108, 109.
 PETERSON, E., with A. E. R. BOAK, *Karanis: Topographical and Architectural Report of Excavations during the Seasons 1924-8* (reviewed), 267-8.
 Petronius, 257.
 Philadelphia, projected temple at, 45.
 Philistines, 26, 27, 32, 35, 37, 40, 41, 42, 43.
 Pier, G. C., copies stele of Thethi, 55.
 Pinara, 34, 36.
 Pinaritae, 34, 36.
 Pinarus R., 34, 36.
 Pisidia, 30, 31, 33, 36, 37, 41, 42.
 Plenderleith, Dr. H. J., 65.
 Pliny on mummification, 13.
 on cedars, 14, 15, 17, 19, 36, 37.
 Pluton, procurator, 7.
 Pnhesi, house of, 179; fragments from, 182.
 Part, "name of Keftiu," Cilician equivalents, 36-7.
 Pogson-Smith, W. G., 112.
 Poitiers, lamps at, 202.
 Pompeii, sundial from, 174.
 Porphyrios, monument of, 4.
 Portrait of Smenkhkêrê(?), A, and other 'Amarnah Fragments in the British Museum, H. R. HALL, 165.
 Preliminary Report of Excavations at Tell el-'Amarnah, 1930-1, J. D. S. PENDLEBURY, 233-44.
 Primitive Methods of Measuring Time, with special reference to Egypt, R. W. SLOLEY, 166-78.
 Problem in Egyptian Geometry, A, T. ERIC PEET, 100-6.
 Psamatik I or II, shabti of, 11-12.
 Ptahmase, High-priest of Ptah, 48, 49.
 Ptolemy (geographer), 36, 83.
 Ptolemy Philadelphus, 46.
 Pytamus R., 33.

R

- Rameses I, coffin of, 107-9.
 Rameses II, mummy of, 107-8-9.
 Rea, Mrs. Russell, 98.
 Reed-floats in Modern Egypt, G. D. HORNBLOWER, 53-4.
 REICH, NATHANIEL JULIUS, *An Abbreviated Demotic Book of the Dead*, 85-97.
 Rekhmirêf, paintings in tomb-chapel of, 26, 113.
 Retenu, Upper and Lower, 26.
 Rhampsinitus, 61.
 Rhosus, 33, 36.
 Roman literary allusions to water-clocks, 176.
 Romanus, Emperor, 39.
 Rome, chariot-racing in, 4, 5.
 examples of lamps in, 202, 203, 206.
 Rê, "name of Keftiu," Cilician equivalents, 33-4.
 Rusas, Vannic royal name of Keftiuan type, 38, 40, 42.

S

- S. Menas, sanctuary of, 203.
 Sagalassus, 42.
 Saka, 74, 76, 78, 80.
 Salonika, examples of lamps from, 202, 204.
 Samarra, 203, 205, 206.
 Sandas or Sardon, Cilician god, 27, 28, 29, 43.
 SANDERS, HENRY A., *Two Fragmentary Birth-Certificates from the Michigan Collection and Some Papyrus Fragments from the Michigan Collection* (reviewed), 268-9.



- Sandokos, Cilician god, 28, 29, 43.
 Sarduris, name connected with Sandas, 39.
 Sargon of Assyria, 38, 42.
 Sayce, Professor, 112.
 SCHÄFER, HEINRICH, *Von ägyptischer Kunst: Eine Grundlage. Die Leistung der ägyptischen Kunst. Ägyptische und heutige Kunst und Weltgebäude der alten Ägypter* (reviewed), 147-50.
 Scott, Miss N. E., 223.
 Scott-Moncrieff, P. D., 55, 61.
 Sebekhotep III, 187.
 SEIDL, ERWIN, *Der Eid im ptolemäischen Recht* (reviewed), 152-3.
 Seleucia Pieria, Zeus-worship at, 188-9.
 Selinus, 33, 37.
 Semerkhet, 68, 69.
 Sesostris I, 187.
 SETHE, KURT, *Amun und die Acht Urgötter von Hermopolis, eine Untersuchung über Ursprung und Wesen des ägyptischen Götterkönigs* (reviewed), 151-2.
 Seti I, 70.
 history of his mummy, 107-9.
 Shalmaneser III, 38.
 Shaw, W. B. K., 223, 254.
 Shekelesh, 42.
 Shêkh 'Abd el-Kurnah, inscription from, 175.
 Sherman, J. R., 233, 254.
 SHORTER, ALAN W., *Historical Scarabs of Tuthmosis IV and Amenophis III*, 23-5, 85.
 Siamen, royal re-burials under, 107, 108, 109.
 Siristat, 35.
 Siwah, 190.
 SLOLEY, R. W., *Primitive Methods of Measuring Time*, 166-78.
 Small Temple in the Western Desert, A. G. W. MURRAY, 81-4.
 Smenkhkare, 165, 183, 243.
 Smith, Sidney, succeeds Dr. Hall, 145.
 Spiegelberg, W., death of, 144.
 Stele of Thethi, The, AYLWARD M. BLACKMAN, 55-61.
 Strabo cited, 13, 28.
 STRUVE, W. W., *Mathematischer Papyrus des Staatlichen Museums der Schönen Künste in Moskau* (reviewed), 154-60.
 Sundwall, Dr., 26, 30, 34.
 Susa, lamp from, 203.
 Syrian Gates, 36.
- T**
- Tanis, 172.
 Tarhundaraba, king of Arzawa, 27.
 Tarkhan, 68, 79.
 Tarkhulara, king of Mar'ash, 42.
 Tarkhunazi, king of Malâtia, 33, 39, 40, 42.
 Tarkondemos, 27.
 Tarku, Cilician god, 27, 29, 43.
 Tarquinius, 27.
 Tarsus, 28, 41.
 Termessus, 33, 36.
 Teucer, 32.
 Theophrastus on cedars, 14, 17.
 Thethi, biography of, 55-7, 61.
 THOMAS, W. R., *Moscow Mathematical Papyrus*, No. 14, 50-2.
 THOMPSON, R. CAMPBELL, *The Epic of Gilgamesh* (reviewed), 259-60.
- Three Royal Shabtis in the British Museum, H. R. HALL, 10-12.
 Time, Egyptian methods of measuring, 168-76.
 Tirhakah, his temple in Nubia, 257.
 Tochma-Su, valley of, important route, 39.
 Trokombigremis, 27.
 Tubal-Cain, 41, 43.
 Tuglarmu, 39, 42.
 Tunip, 26.
 Tutankhamun, 165, 169, 243, 257.
 Tuthmosis III, 39, 42, 209.
 Tuthmosis IV, 23-4, 110.
 Ty-k, common female name, 95.
- U**
- Uedipris, king of Urartu, 38, 40.
 Umm el-Ka'ab, 70.
 Unusual Type of Statuette, An, S. R. K. GLANVILLE, 98-9.
 Urartu, Cilician character of royal names in, 38-9, 43.
 Useramun, fresco from tomb of, 26.
 Uzunja-Burdj, 32, 36.
- V**
- Van, Lake and Kingdom, 31, 32, 34, 38-9.
 western connexions of, 39, 42.
 Vaulting at 'Amarnah, similar to examples at Khor-sabad, 244.
 Venice, Treasury of S. Mark, 202-3, 205, 207.
 VIKENTIEV, VLADIMIR, *Nâr-Ba-Thai*, 67-80.
 Vitruvius, 19, 174, 177.
- W**
- Waddington, H., 233, 254.
 Wâdi Hamâmât, 187.
 WAINWRIGHT, G. A., *Keftiu*, 26-43.
 The Emblem of Min, 185-92.
 lecture by, 144.
 reviews by, 151-2, 200-1.
 Walle, M. B. van de, 223.
 Water-clocks, 174-7.
 WEILL, RAYMOND, *Bases, méthodes et résultats de la chronologie égyptienne. Compléments* (reviewed), 162-3.
 Wellcome Historical Medical Museum, 254.
 Wennofer, official under Siamen, 109.
 WESTERMANN, WILLIAM LINN, *Upon Slavery in Ptolemaic Egypt* (reviewed), 160-1.
 WILSON, JOHN A., *Ceremonial Games of the New Kingdom*, 211-20.
 WINLOCK, H. E., *The Tomb of Queen Inhapi*, 107-10; 224.
 WOLF, WALTER, *Das schöne Fest von Opet: Die Festzugdarstellung im grossen Säulengange des Tempels von Luxor* (reviewed), 264.
 WOOLLEY, C. L., 41, 112.
- Z**
- Zakkal, perhaps connected with Ziklag, 32, and Teukroi, 35, 42.
 Zenonopolis, 34.
 Zer, tomb of, 67.
 Zeus, connected with Min, 188, 191.
 Ziklag, name connected with Zakkal or Teukroi, 35.
 ZULUETA, F. DE, *Bibliography: Graeco-Roman Egypt. A. Papyri (1929-30):*
 6. Law, 130-40.

CAMBRIDGE: PRINTED BY
W. LEWIS, M.A.
AT THE UNIVERSITY PRESS



"A book that is shut is but a block"

CENTRAL ARCHAEOLOGICAL LIBRARY

GOVT. OF INDIA
Department of Archaeology
NEW DELHI.

Please help us to keep the book
clean and moving.

S. 2, 148. H. DELHI.